

**EFFECTS OF THE PRE-DECISION STAGE OF DECISION MAKING ON THE
SELF-REGULATION OF BEHAVIOR**

by

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EFFECTS OF THE PRE-DECISION STAGE OF DECISION MAKING ON THE SELF-REGULATION OF BEHAVIOR

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My dissertation consists of three essays that examine the effects of processes that take place in the pre-decision stage of decision-making on subsequent self-regulation. In my first essay I examine a new construct dealing with individuals' tendency to elaborate on potential future outcomes and develop a scale to measure it. Elaboration on potential outcomes captures the degree to which individuals generate positive and negative consequences of their behaviors, as well as the degree to which they evaluate the likelihood and importance of these consequences. I first develop the Elaboration on Potential Outcomes (EPO) scale and establish its factor structure, reliability and validity. I then investigate its relationships with conceptually related yet distinct consumer traits. Third, I examine its association with various consumer behaviors such as exercise of self-control, procrastination behaviors, compulsive buying, credit card debt, retirement investing, healthy lifestyle, and obesity. Finally, I show that peoples' tendency to think about potential outcomes predicts the type of information processing they engage in when making an important consumer decision, as well as the choices they make.

In my second essay I examine consumers' tendency to elaborate in potential outcomes in the context of investment behavior. In three studies I show that investors with a stronger chronic tendency to engage in pre-decision outcome elaboration are less likely to be affected by different types of descriptive variance effects, which emerge when individuals make different decisions as a function of how information is presented to them. Furthermore, I find that encouraging pre-decision elaboration on the pros and cons of investing helps investors who tend not to engage in such elaboration to become less influenced by peripheral cues such as information framing and presentation mode.

Finally, in my third essay I examine a different pre-decision process – goal activation at different levels of abstraction. The main question I look at is whether activating high- vs. low-level goals by asking consumers to consider why they should achieve a goal rather than how they can achieve it might differentially affect their pursuit of this goal. In two studies I examine the interactive effects of decisional status (pre- or post-decisional) and goal hierarchy (high- vs. low-level goal activation) on several self-regulatory domains: goal commitment, anticipated effortful goal pursuit, and choice.

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PREFACE

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1.0 *SECTION I*

INTRODUCTION

A large amount of recent research has examined the important questions of why and how people fail in their self-regulation efforts when they possess the knowledge, skill and opportunity that are required to control their thoughts, emotions, and behaviors (e.g., see Baumeister and Heatherton 1996). The importance for studying self-regulation is widely recognized, as it has implications for economics, psychology, political science, education, consumer research (Fujita et al. 2006). Past research has examined different conceptualizations of self-regulation, and has proposed various factors that might increase or impair its effectiveness. Some researchers have proposed that exerting self-control requires one to inhibit automatic reactions, and monitor their actions consciously (Baumeister and Heatherton 1996; Baumeister, Heatherton, and Tice 1994). According to this model any factor that depletes one's conscious resources would increase self-control failures. Others have suggested that self-control requires one to make decisions and to act in accordance with long-term rather than short-term outcomes (Thaler 1991), and factors that limit attention to the here and now are likely to hamper self-control effectiveness. Another conceptualization has suggested that actions can be instigated by either a hot system or a cool system (Loewenstein 1996; Metcalfe and Mischel 1999). The hot system is composed of affective mental representations, and when activated leads to impulsive responses. The cool system is composed of emotionally neutral cognitions that guide behavior in a thoughtful manner. Self-control from this perspective involves differential activation of the cool system

over the hot system, and factors that enhance the activation of the hot system will hamper self-control. Recent research has also suggested that effective self-control requires people to make decisions and act in accordance with global, high-level construals of a situation, rather than local low-level construals (Fujita et al. 2006).

In my dissertation I propose a new conceptualization of self-regulation, and examine how consumers' self-regulation efforts are affected by what happens before they make a decision. I argue that an important pre-decision process, elaborating on the potential outcomes of a decision or action, lies at the heart of self-regulation and is a major ingredient of its effectiveness.

Self-regulatory processes are evident in all aspects of people's behavior, and are exerted in any effort by people to alter their responses. Self-regulation refers to the process by which people initiate, adjust, interrupt, terminate, or otherwise alter actions to promote attainment of personal goals, plans, or standards (e.g., Carver and Scheier 1998). The process of self-regulation involves several important components – (1) having clear standards of how things should be, (2) comparing one's actual state to a desired state indicated by the standards and (3) overriding responses and bringing about a desired change in case the current state falls short of the standards (Carver and Scheier 1998). These fundamental processes are very important for understanding self-regulation, but past literature has not devoted a great deal of attention to factors that determine their success.

Various constructs have been proposed to explain self-regulation and its failure, including self-efficacy (Bandura 1997), feedback loops (Carver and Scheier 1981; 1998), time inconsistent preferences (Hoch and Loewenstein 1991), ego depletion (e.g., Baumeister et al. 1998), conscientiousness (Bem and Allen 1974), self-esteem (Baumeister, Heatherton and Tice 1993), and delay of gratification (Mischel, Shoda and Peake 1988). Although these fundamental

processes are very important for understanding self-regulation, some determinants of self-regulation have received less attention. In my dissertation I examine how processes that occur in the pre-decision stage can affect consumer self-regulation. More specifically, I look at how peoples' tendency to elaborate on potential future outcomes before they make a decision, and how goal activation at different levels of abstraction can affect self-regulation.

My work builds on the action phases model that partitions self-regulation into four distinct action phases: (1) deliberating whether to take action; (2) planning action implementation; (3) taking an action; and (4) evaluating the action (e.g., Gollwitzer 1990; Heckhausen 1991). The action phases model suggests that successful goal pursuit means solving the four consecutive tasks of deliberating the desirability and feasibility of wishes and desires and turning them into goals, getting started with the goal-directed behavior, bringing the initiated goal action to a successful end, and determining whether the initial goal has indeed been achieved (Heckhausen and Gollwitzer 1987; Gollwitzer 1990). In my work I focus on the first stage in the model, deliberation on wishes and goal setting, and examine the effects of processes that take place in this stage on effective self-regulation in the later stages of the model.

All three dissertation essays take a temporal, horizontal view of goal pursuit, and examine goal pursuit and self-regulation as part of a multi-stage process where processes that occur in earlier stages affect those in later ones. Essays 1 and 2 examine the effects of an important pre-decision process –outcome elaboration – on subsequent self-regulation, information processing, and susceptibility to decision biases. Furthermore, essay 3 combines this horizontal view with a vertical, hierarchical view of goal pursuit, and looks at how different decision-making stages interact with different levels of goal abstraction to affect several domains of self-regulation – goal commitment, goal pursuit, and choice.

My first essay examines a new construct dealing with individuals' tendency to elaborate on potential future outcomes, and develops the Elaboration on Potential Outcomes (EPO) scale as a measure of this construct. Elaboration on potential outcomes captures the degree to which individuals both generate positive and/or negative potential consequences of their behavior and evaluate the likelihood and importance of these consequences.

One of the most dominant models of self-regulation is the feedback-loop model developed by Carver and Scheier (1981, 1998). Feedback-loop analysis is a central development in understanding the process of self-regulation, and it is important to build on and develop it. One important issue needing further examination is the process of anticipation of potential desired and undesired outcomes (Baumeister et al. 1994, Carver and Scheier 1998). The concept of outcome anticipation lies at the heart of self-regulation. Elaboration on the potential outcomes of behavior not only makes people conscious of (un)desired standards and end-states, but also provides them with information as to whether an act has the potential to move them towards a desired end-state or away from an undesired one. Thus, considering future outcomes makes people more conscious of the possible effects of their behaviors and more aware of the standards to which to compare those outcomes. This information is useful in detecting a discrepancy between potential outcomes and desired standards, and is therefore likely to lead to better self-regulation and more appropriate modification of behavior. In my work I focus on one factor directing attention to future goals and implications, which has the potential to improve the capacity for self-regulation: one's tendency to elaborate on potential outcomes.

In five studies I examine how outcome elaboration relates to various consumer traits such as impulsiveness, risk aversion, need for cognition, optimism, regulatory focus, and consumer behaviors such as the exercise of self-control, procrastination, compulsive buying, credit card

debt, retirement savings, and healthy lifestyle. I show that consumers' tendency to transcend the immediate situation and elaborate on the potential outcomes when deciding how to behave is an important determinant of self-regulation. Building on past self-regulation research, I argue that EPO is essential for behavior regulation and exertion of effort in one's goals pursuit. I show that people who are more inclined to consider potential consequences are more likely to engage in self-regulation in their pursuit of a desired result. Furthermore, I show that encouraging pre-decision elaboration on potential outcomes improves self-regulation for consumers who are not inclined to engage in this type of elaboration when deciding how to behave.

My second essay examines the effects of the pre-decisional action phase on consumers' susceptibility to decision biases. I extend findings from my first essay, and again examine the effects of consumers' tendency to elaborate on potential outcomes. More specifically, I look at how consumers' tendency to elaborate on potential outcomes might help mitigate some investment decision-making biases. Building on Gollwitzer's mindset theory (e.g., Gollwitzer 1990) I argue that elaboration on potential positive and negative outcomes in the pre-decision stage of decision-making reduces people's susceptibility to descriptive variance effects. Descriptive variance effects emerge when individuals make different decisions as a function of how information is presented to them, even though the substance of the information is unchanged. Descriptive variance is demonstrated in two major streams of research: investigations of framing effects and studies of information presentation effects (Payne, Bettman, and Johnson 1992). Effects of message framing – responding differently to distinct but objectively equivalent descriptions of the same message (e.g., 10% fat versus 90% fat-free) – and effects of message presentation – responding differently to equivalent information presented in

different modes (e.g. verbally, numerically or graphically) – have both been found to affect preferences and choices.

When processing a framed message people adopt a particular frame of reference towards the target, and do not focus on alternative frames of reference as much. Past research has argued that pre-decision deliberation creates a cognitive orientation – a “deliberative mindset” – that facilitates the task of determining which available option is most desirable while still being feasible (Gollwitzer 1990). Individuals in a deliberative mindset, who weigh the pros and cons of feasibility-related and desirability-related information and the positive and negative consequences of goal pursuit, are more receptive both to information that is externally available and to information that is stored in memory (Gollwitzer and Bayer 1999; Heckhausen and Gollwitzer 1987). Such a balanced consideration of positive and negative consequences makes alternative frames of reference more accessible thus reducing shortcomings people ordinarily exhibit when analyzing the desirability of a choice, such as falling prey to framing effects.

Building on findings from my first essay, I argue that consumers’ tendency to elaborate on potential outcomes (EPO) generally leads to more potent deliberative mindsets. As I show in my first essay, some people have a stronger tendency than others to elaborate on the potential implications of a decision and weigh its pros and cons, which makes them more likely to activate a potent deliberative mind-set in the predecisional phase and reduces their susceptibility to the effects of message framing and information presentation effects.

In a series of three studies, I find that consumers with a stronger tendency to elaborate on potential outcomes are less susceptible to different types of descriptive variance effects. Furthermore, I show that susceptibility to the effects of descriptive variance can be reduced for investors who tend not to engage in EPO by encouraging them to elaborate on the potential

positive and negative outcomes of investing before making a decision by priming a deliberative mindset. The three studies in this essay employ three types of descriptive variance manipulations - attribute framing, goal framing, and format variation - and show that consumers' tendency to consider the implications of their decisions mitigates their susceptibility to descriptive variance effects for all types of framing. Furthermore, Study 3 also examines whether priming deliberative mindsets by encouraging investors to consider the pros and cons of investing reduces the susceptibility to descriptive variance biases for investors with weaker tendency to engage in pre-decision outcome elaboration.

My third essay extends findings from the previous two essays in two important ways. First, in this essay I combine both horizontal (temporal) and vertical (hierarchical) approaches to goal pursuit by examining the combined effects of consumers' decisional status (i.e. predecisional or postdecisional) and abstraction level of goal activation (i.e. high- or low-level). Second, in this essay I examine several important self-regulatory domains that were not covered in the first two essays: goal commitment, anticipated effortful goal pursuit, and choice.

Each of the action phases discussed earlier requires its own cognitive operations (mindsets), which, once accessible due to recent usage, affect how people interpret newly encountered information (Gollwitzer 1990; Gollwitzer and Bayer 1999). The first two, *preactional* phases of the action phases model: deliberating whether to take action and planning action implementation, are associated with different mindsets - deliberative and implemental, which possess some stability over time and generalize across situations. Adopting a deliberative mindset and considering potential pros and cons of particular courses of action, is expected to subsequently highlight the abstract, high-level value of activities, and adopting an implemental mindset, that is planning how to carry out activities, is expected to highlight the concrete, low-

level procedures that comprise activities (Freitas, Gollwitzer, and Trope 2004). Therefore, I examine how these two different stages of the decision-making process influence the effectiveness of activating goals at different level of abstraction.

Existing research on goal structure and determination has postulated a hierarchical goal structure (e.g. Bagozzi and Dholakia 1999; Carver and Scheier 1998; Huffman, Ratneshwar, and Mick 2000). Some goals are broader in scope than others, and this difference in breadth is often a difference in the level of abstraction at which the goal exists (Carver and Scheier 1998). Higher-level goals versus lower-level ones, are more abstract, more inclusive, and less mutable. Vallacher and Wegner's (1987) action identification theory also suggests that actions can be represented in terms of superordinate goals that have to do with the relatively abstract "why" aspects of an action, or subordinate goals that have to do with more specific "how" details of the action. Following the goal hierarchy structures outlined above, in two studies I examine how activation of different level goals - superordinate or subordinate - will differentially aid consumer self-regulation depending on one important factor –consumers' pre- or post-decisional status. I show that activation of high-level superordinate goals will promote more effective self-regulation for consumers who are in the pre-decision stage of decision making, and are still deliberating on the pros and cons of a decision. On the other hand, low-level subordinate goals will promote more effective self-regulation for consumers who are in the post-decisional stage of decision-making and are now planning the implementation of a decision they have already made. These findings have important implications for the design, presentation, and communication of consumer products and persuasive messages that are designed to reach consumers at the different stages of their decision-making process.

Findings from the three essays of my dissertation provide important contributions to research dealing with future-oriented thinking, action phases, self-regulation, goal setting, and descriptive variance. Furthermore, these findings have numerous implications for understanding deleterious consumer behaviors in the contexts of investment decision making, weight management, and healthy nutrition.

Next, I present my first essay entitled “Expectations about the Future: The Conceptualization and Measurement of Elaboration on Potential Outcomes”. Following are the second essay: “Moderators of the Susceptibility to Descriptive Variance Effects in Investment Decision Making,” and the third one: “The Interplay of Mindsets and Goal Hierarchy in Consumer Goal Pursuit and Choice.” Finally, I conclude with a discussion of the contributions and implications of findings presented in the three essays.

2.0 *SECTION II*

ESSAY 1: EXPECTATIONS ABOUT THE FUTURE: THE CONCEPTUALIZATION AND MEASUREMENT OF ELABORATION ON POTENTIAL OUTCOMES

Self-regulation failure creates numerous problems for consumers unable to manage their money and time, control their weight, and limit their drinking. Being unable to regulate one's emotions, impulses, actions, and thoughts creates problems not only for individual consumers, but also for society as a whole. Given the important consequences of self-regulation, the determinants of its success or failure need to be further studied. In this essay I examine one important self-regulation determinant – elaboration on potential outcomes. I show that consumers differ in their tendencies to engage in pre-decision outcome elaboration, and that those who consider potential outcomes when deciding how to behave are more efficient in their self-regulation endeavors.

The process of self-regulation involves several important components – (1) having clear standards of how things should be, (2) comparing one's actual state to a desired state indicated by the standards and (3) overriding responses and bringing about a desired change in case the current state falls short of the standards (Carver and Scheier 1998). These fundamental processes are very important for understanding self-regulation, but past literature has not devoted a great deal of attention to factors that determine their success. In this essay I examine one such factor –

peoples' tendency to elaborate on potential future outcomes – an important determinant of self-regulation, which has not received sufficient attention in the past.

Research has demonstrated compelling differences among individuals in their self-regulatory strategies and cognitive competencies for exerting self-regulation. This work has attempted to explain these differences in terms of the mediating processes that underlie them, such as individuals' encoding strategies, expectancies, values and goals, affective reactions, and self-regulatory strategies (e.g., Mischel, Cantor, and Feldman 1996). Mischel and colleagues propose that a challenging goal for future research is to more fully understand how these mediating person-specific variables interact and guide the individual's behavior "in the long and often difficult road from willing to wishing to willpower" (Mischel et al. 1996, 351).

The construct I present here - elaboration on potential outcomes - encompasses four dimensions, each of which can be distinguished conceptually and measured separately from the others. Specifically, it captures the degree to which individuals generate potential consequences of their behaviors, the degree to which they evaluate the likelihood and importance of these consequences, the degree to which they focus on positive consequences, and the degree to which they focus on negative consequences. This research builds on the notion that there are reliable individual differences in the extent to which individuals are likely to consider the outcomes of their decisions and actions.

I present the Elaboration on Potential Outcomes (EPO) scale as a measure of this construct, and then conduct a series of studies that assess the reliability and validity of this scale. The aims of this essay are to describe the structure of EPO, to introduce an instrument for measuring the construct, and to examine its relationship with various consumer traits and behaviors. I wish to emphasize that this essay is not simply about developing a new scale. Just as

important are the substantive findings of the structure of EPO and its relationship to consumer traits and self-regulation behaviors.

The remainder of this essay unfolds as follows. I first review the theory of self-regulation and establish its relationship to consumers' elaboration on potential outcomes. I then briefly look at related theories and constructs that deal with expectations about the future, and present and discuss my conceptual model. Next I present a series of studies aimed at developing a valid and reliable scale to measure consumers' tendencies to elaborate on the potential outcomes of their behavior, and then use the scale to establish a link between elaboration on potential outcomes and consumers' self-regulation behaviors. I conclude with a general discussion and suggestions for future research.

2.1 ELABORATION ON POTENTIAL OUTCOMES AND SELF-REGULATION

Self-regulatory processes are evident in all aspects of peoples' behaviors. Self-regulation refers to the process by which people initiate, adjust, interrupt, terminate, or otherwise alter actions to promote attainment of personal goals, plans, or standards (Baumeister, Heatherton and Tice 1994; Carver and Scheier 1998). Self-regulation is a complex, multifaceted process and has been examined in multiple domains such as personality (Carver and Scheier 1981, 1998; Mischel et al.1996), motivation (Bandura 1991; Gollwitzer 1990), social and cognitive psychology (Baumeister et al. 1994; Baumeister and Heatherton 1996; Fiske and Taylor 1991; Higgins, Strauman, and Klein 1986), and consumer research (e.g., Hoch and Loewenstein 1991; Kivetz and Simonson 2002; Mukhopadhyay and Johar 2005).

One of the most dominant models of self-regulation is the feedback-loop model developed by Carver and Scheier (1981, 1998). Feedback-loop analysis is a central development in understanding the process of self-regulation, and it is important to build on and develop it. One important issue needing further examination is the process of anticipation of potential desired and undesired outcomes (Baumeister et al. 1994, Carver and Scheier 1998). The concept of outcome anticipation lies at the heart of self-regulation. Elaboration on the potential outcomes of behavior not only makes people conscious of (un)desired standards and end-states, but also provides them with information as to whether an act has the potential to move them towards a desired end-state or away from an undesired one. Thus, considering future outcomes makes people more conscious of the possible effects of their behaviors and more aware of the standards to which to compare those outcomes. This information is useful in detecting a discrepancy between potential outcomes and desired standards, and is therefore likely to lead to better self-regulation and more appropriate modification of behavior.

Other prominent work on self-regulation has also emphasized that effective self-regulation requires the individual to be able to transcend the immediate situation by considering long-term consequences and implications (Baumeister and Heatherton 1996). When transcendence is weak and attention is bound to the here and now, the chances of self-regulation failure are increased. Therefore, one proximal cause of self-regulation failure is the failure of transcendence. According to Baumeister and his colleagues, “the factors that contribute to the success or failure of transcendence deserve further study” (Baumeister et al. 1994, 259). They show that factors directing attention to future goals and implications will tend to improve the capacity for self-regulation (Baumeister and Heatherton 1996). These may include both

situational and dispositional factors. I focus here on one such dispositional characteristic: one's tendency to elaborate on potential outcomes in the process of self-regulation.

It is important to make a distinction between modes of thinking about the future that are beneficial, even necessary, for effective self-regulation (i.e., expectations, standards and goals), and modes that are not effective in helping people regulate their behavior (e.g., outcome simulations, fantasies, ruminative thoughts) (e.g., see Anderson 1983; Gregory, Cialdini, and Carpenter 1982; Hoch 1985; Marton and Tesser 1989; Taylor et al. 1998; Oettingen and Mayer 2002). Researchers in the past have argued that imagining the future is not intrinsically beneficial for self-regulation, but must be actively harnessed to be effective for this purpose, since imagining different possibilities and engaging in mental simulations is not the same as expecting these possibilities to occur (Oettingen 1996; Taylor et al. 1998).

2.1.1 Related Theories and Constructs

The idea that peoples' actions are greatly affected by potential outcomes is central not only to self-regulation theory, but has had a long history in psychological theories of motivation (e.g., Bandura 1997; Rotter 1954; Tolman 1938). According to these theories, people motivate themselves and guide their actions by the outcomes they expect to result from given courses of behavior (Bandura 1997). Anticipated consequences have also been considered as determinants of intentions to act (e.g., Fishbein and Ajzen 1975). Outcome consideration has been conceptualized and examined as several different types of expectancy judgments - self-efficacy expectations (whether one can perform a certain behavior and is capable of achieving a particular outcome; Bandura 1997), outcome expectancies (the likelihood that performing a certain behavior will lead to the desired outcome; Carver and Scheier 1998; Bandura 1997), or general

expectations (whether the future in general will be positive or negative; Scheier and Carver 1992). The construct I examine here – elaboration on potential outcomes – adopts a multi-dimensional perspective, and represents a generalized, context-independent predisposition towards thinking about potential consequences. It goes beyond expectancy judgments, which only deal with assessing one’s capability and likelihood of achieving an outcome, and encompasses all aspects of the process of outcome consideration

2.2 CONCEPTUAL MODEL OF ELABORATION ON POTENTIAL OUTCOMES

Elaboration on potential outcomes (EPO) encompasses four dimensions that deal with different aspects of the outcome consideration process: (1) the extent to which people generate potential consequences, (2) the extent to which people evaluate the importance and likelihood of the consequences they generate, (3) the extent to which they focus on the positive consequences, and (4) the extent to which they focus on the negative consequences. These are discussed in more detail below.

2.2.1 Generation Dimension

The first dimension is *generation*. Mischel et al. (1996) point out that self-regulation and goal pursuit are very hard to execute, and individuals who can only see a situation one way or imagine one worthy outcome will be unlikely to do well. They argue that thorough consideration of the effects of an intended behavior help people to regulate behavior in pursuit of a desired goal or avoiding an undesired one. That is, considering a number of different outcomes and viewing a situation in a variety of ways is essential for self-regulation. Thus, I propose that the

degree to which people generate a variety of potential consequences before making decisions is an important element comprising the process of elaboration on potential outcomes.

2.2.2 Evaluation Dimension

The second proposed dimension – *evaluation* – is closely related to outcome expectancies, and concerns the extent to which people evaluate the likelihood and significance of potential consequences once they have generated them. Self-regulation theory suggests that outcome expectancies – peoples’ subjective probability determinations that outcomes will or will not occur – influence their decision to pursue a goal versus disengage, and are major determinants of self-regulation (Carver and Scheier 1998). Thus, I propose that an important component of the process of elaboration on potential outcomes is the degree to which people evaluate the likelihood and importance of the consequences they have generated.

2.2.3 Positive and Negative Outcome Focus Dimensions

Researchers have emphasized that it is not enough to know whether and when people regulate their behavior, but it is also necessary to understand how people deal with their world to make this happen (Higgins 1999). Self-regulatory models (Carver and Scheier 1981; 1998) make a distinction between two types of self-regulatory systems – one having a positive and one having a negative reference value. A self-regulatory system with a positive reference value has a desired end state and represents attempts to move closer to the desired end. In contrast, a self-regulatory system with a negative reference value has an undesired end state and involves attempts to move away from this undesired state. Higgins (1999) makes a similar distinction between self-regulation with a promotion focus and self-regulation with a prevention focus.

In my conceptualization of the process of outcome elaboration, I take into account the fact that people have different approaches to self-regulation, and distinguish between peoples' tendency to focus on positive or negative outcomes in the process of consequences consideration. Thus, I propose two further dimensions of elaboration on potential outcomes: *positive focus* and *negative focus*. I conceptualize positive (negative) focus as a disposition to focus on the positive (negative) consequences that might ensue when thinking about potential outcomes of a decision or action. People who tend to focus on positive potential outcomes prefer a self-regulatory system with a positive reference value, whereas people who tend to focus on the negative potential outcomes prefer a self-regulatory system with a negative reference value.

2.2.4 Self-regulation Effectiveness versus Self-regulation Approaches

Since the four proposed EPO dimensions converge on a single underlying quality (latent variable), and each dimension reflects this latent variable imperfectly, elaboration on potential outcomes can be considered a multifaceted construct (Carver 1989). I conceptualize elaboration on potential outcomes as a construct composed of four subordinate constructs (generation, evaluation, positive focus, and negative focus) that are related to each other both logically and conceptually, yet should be distinguished from one another and measured separately. EPO's sub-dimensions represent different aspects of the process of outcome elaboration, and relate to different aspects of consumers' decision-making and behavior. While the generation and evaluation dimensions relate to consumers' self-regulation *effectiveness*, and deal with whether and when consumers engage in self-regulation, the positive and negative outcome focus dimensions relate to consumers' self-regulation *approaches*, and deal with how consumers go about the self-regulation process. The fact that people approach the process of outcome

elaboration differently (i.e., they have different strategic inclinations), with positive or negative reference values in mind, does not mean that they will be either more or less effective in self-regulation, nor that they will have a greater or lesser motive to succeed (Higgins et al. 2001).

Thus, these dimensions need to be scored and examined separately. It is also important to clarify that the positive and negative outcome focus dimensions should be considered separately, as peoples' positive/negative outcome focus tendencies are not two ends of a single continuum. Someone who focuses on positive potential outcomes does not necessarily ignore negative ones and vice versa. Indeed, some individuals engage in a balanced outcome consideration and are high on both positive and negative outcome focus. Therefore, combining these dimensions is inappropriate.

The remainder of this essay is organized as follows. In a series of empirical studies employing established psychometric procedures (e.g., DeVellis 2003), I assess the reliability and validity of the proposed scale. In study 1, I confirm the dimensionality of the scale and refine it using confirmatory factor analysis. I also assess the discriminant and nomological validity of the newly developed scale by relating it to a number of established psychological constructs. Finally, known-groups validity is established and concerns about potential social desirability bias are addressed. Study 2 provides further evidence of the validity of the newly developed EPO scale. The purpose in this study is to provide a demonstration of the effect of elaboration on potential outcomes on information processing and decision making in a specific situation. In study 3, I establish a link between elaboration on potential outcomes and self-regulation by relating EPO to a variety of behaviors resulting from self-regulation (in)effectiveness. Finally, in study 4, I show that consumers with stronger EPO tendencies exhibit more self-regulation when faced with a

specific choice, and that encouraging pre-decision outcome elaboration improves self-regulation for consumers with weaker EPO tendencies.

2.3 STUDY 1: SCALE DEVELOPMENT

The purpose of study 1 is to develop the Elaboration on Potential Outcomes scale, and to assess its reliability, dimensionality, and discriminant validity. I follow standard procedure in generating the initial pool of items for the Elaboration on Potential Outcomes scale (e.g., DeVellis 2003; Bloch, Brunel, and Arnold 2003). First, I reviewed the relevant literature and closely examined instruments used to measure similar constructs. Second, I conducted in-depth discussions with behavioral experts. Third, four judges were given the definition of the four dimensions and asked to allocate the potential items to one of the four dimensions or to indicate that they did not belong to any of the dimensions. Fourth, after eliminating items that were not consistently categorized by at least three of the judges, I pretested the remaining items on a sample of 260 undergraduate students to identify items that reduced the internal consistency of the scale or that failed to load adequately in an exploratory factor analysis. These items were dropped, and new, more domain-relevant items were added, resulting in 22 items for subsequent use in study 1 (generation dimension – 6 items; evaluation dimension – 5 items; positive focus dimension – 4 items; negative focus dimension – 7 items).

2.3.1 Method

In order to assess the discriminant and nomological validity of the EPO scale, I examined whether or not it is distinct from other related constructs. As discussed earlier, the generation and

evaluation dimensions are related to self-regulation effectiveness, and can therefore be validated by relating them to other constructs that have previously been used to examine self-regulation effectiveness: impulsive buying (Rook and Fisher 1995), compulsive buying (Faber and O’Guinn 1992), need for cognition (Cacioppo and Petty 1982), consideration of future consequences (Strathman et al. 1994), and risk aversion (Donthu and Gilliland 1996). The positive and negative outcome focus dimensions are related to peoples’ approaches to self-regulation, and can be validated by relating them to other constructs that have been used to examine self-regulation approaches: optimism (Scheier, Carver, and Bridges 1994), chronic regulatory focus (Higgins et al. 2001), and defensive pessimism (Norem and Cantor 1986).

I collected data from students enrolled in undergraduate classes who received extra course credit for participating in the study (n = 367; 180 male and 187 female). Participants were given survey packages containing measures representing the proposed EPO scale, the eight established scales noted above, and a measure of impression management (Paulhus 1991). For all of the scales administered, participants were asked to indicate their degree of agreement using seven point response scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Because of time availability constraints and the significant length of the questionnaire, different people received different questionnaires, and there are different sample sizes for different pairs of constructs.

2.3.2 Results and Discussion

Confirmatory Factor Analysis. In order to confirm the EPO scale’s dimensionality and evaluate its items, the 22 items were subjected to confirmatory factor analysis using LISREL 8. Since the four dimensions of the scale are assumed to be conceptually and empirically related to

each other, a four-factor correlated model was estimated. Nine items that did not have sufficiently high loadings on their underlying factors were dropped, and the four-factor model was then re-estimated. Upon further investigation, I found that there was insufficient discrimination (see Fornell and Larcker 1981) between the generation and evaluation dimensions, with the squared phi correlation between these two factors (0.84) greater than the average-variance extracted for generation (0.57) and evaluation (0.60). Thus, I estimated a new three-factor correlated model, with the generation and evaluation items combined into a single dimension. The resulting item loadings are reported in Table 1.1.

The three-factor and four-factor correlated models provide similar fits to the data, and their chi-squares are not significantly different (see Table 1.2). Based on inability to discriminate between the generation and evaluation dimensions empirically, and in the interests of parsimony, I combine the two sets of items for all subsequent analysis and discussion.¹ Table 1.2 also reports various goodness-of-fit statistics for both models. These values meet or exceed recommended levels (e.g., Bollen 1989; Hulland, Chow, and Lam 1996).

Insert Tables 1.1 and 1.2 about here.

In an effort to assess the discriminant validity of sub-dimensions of the EPO scale, two additional models were estimated and compared to the three-factor correlated model. Specifically, I estimated a three-factor uncorrelated model and a one-factor (unidimensional) model. Overall model fit statistics for these models are reported in Table 1.2. These results provide strong evidence for retaining a three-dimensional, correlated factor structure for the EPO scale.

¹ Throughout the analyses in the essay, I estimate both separate scores for generation and evaluation, and a combined score. I constantly find that results obtained using the separate scores are similar to results obtained using the combined score. Since keeping the generation and evaluation dimensions separate does not provide any further information, according to guidelines for testing multifaceted constructs (Carver 1989) I combine these two dimensions for all analysis reported in the essay.

After reducing the scale to 13 items (shown in Table 1.1), the EPO instrument was administered to a new sample of 368 respondents, both students and adult non-students. These data were then analyzed through confirmatory factor analysis using LISREL 8. Results confirmed that a three-factor correlated model provides a very good fit to the data, and all goodness-of-fit statistics meet or exceed recommended levels ($RMSEA = .076$; $GFI = .92$; $AGFI = .90$; $CFI = .95$; $IFI = .95$; $RFI = .91$). Furthermore, all scale items had factor loadings above .76 providing strong evidence for the scale's reliability.

Internal Consistency and Descriptive Statistics. Means, standard deviations, and coefficients alpha for the final 13-item scale are presented in Table 1.3. Cronbach's alpha estimates for the three subscales provided evidence for good internal consistency (Nunnally 1978). The correlations between the three dimensions of the EPO scale are also reported.

Insert Table 1.3 about here

Test-Retest Reliability. To assess the final scale's test-retest reliability, EPO was administered to a new sample of 114 undergraduate students who received extra credit for their participation. Ninety seven of these students also completed a second administration one month later. I allowed for a one month gap between the two assessments, which is enough time for memory effects to fade. The resulting between-administration correlations for all three dimensions were high ($r_{\text{generation/evaluation}} = 0.76$; $r_{\text{positive focus}} = 0.78$; and $r_{\text{negative focus}} = 0.78$; all p -s $< .0001$), demonstrating strong test-retest reliability, and confirming the trait's stability over time.

Nomological Validity. In order to establish the EPO scale's nomological validity, I related its three dimensions to a number of established constructs. As noted earlier, the generation/evaluation dimension predicts self-regulation effectiveness, and should therefore be related to other constructs that have been used in the past to examine whether and when people

engage in self-regulation. On the other hand, the positive and negative outcome focus dimensions predict consumers' self-regulation approaches, and are therefore expected to be related to other constructs that assess how people approach self-regulation.

Table 1.4 describes each construct measured in study 1 and its predicted (and actual) relationship with the appropriate dimension of EPO with which it is expected to correlate. Table 1.4 also reports each construct's correlations with the other EPO dimensions. I conducted dependent correlation tests using the Hotelling-William test (Steiger 1980) to examine differences in the correlations across the three dimensions. Results revealed in general that there are significant differences in the relative strength of each construct's correlation across the three dimensions, which supports my contention that the three EPO dimensions correlate with different sets of constructs. Furthermore, all of the predicted correlations are significant, and in the expected direction. Since all of these correlations are significantly different from unity, I conclude that the EPO scale is nomologically linked to related constructs while also demonstrating clear discriminant validity from them (Lastovicka et al. 1999).

Insert Table 1.4 about here

Correlations between elaboration on potential outcomes and the other constructs measured in study 1 are presented in Table 1.4, and are described more fully below.

Constructs related to self-regulation effectiveness

The five related constructs I explore here that assess individuals' self-regulation effectiveness (impulsive buying, compulsive buying, need for cognition, consideration of future consequences, risk aversion) should all be significantly related to the generation / evaluation dimension of EPO. In general, they should not be related to the other two dimensions. (The

exception is risk aversion, to which the negative focus dimension should also be significantly – and positively – related.)

Impulsive buying. The impulsive buying instrument captures “consumers’ tendency to buy spontaneously, unreflectively, immediately, and kinetically” (Rook and Fisher 1995, 306). As expected, impulsiveness is negatively correlated with the generation/evaluation dimension of the EPO scale ($r = -0.33, p < .05$).

Compulsive buying. Compulsive buying behavior reflects the degree to which a consumer makes excessive purchases as a means of dealing with undesirable mood states and alleviating negative feelings (Faber and O’Guinn 1992). As expected, compulsive buying is negatively related to the generation/evaluation dimension ($r = -.25, p < .01$).

Need for Cognition. Need for cognition is conceptualized as the relative proclivity to process information and is predictive of the manner in which people deal with information processing tasks and social information (Cacioppo et al. 1996). Need for cognition has a significant positive correlation with generation/evaluation ($r = 0.13, p < .01$).

Consideration of Future Consequences (CFC). This construct assesses differences in the extent to which individuals are likely to consider the long-term implications of their behaviors and to use distant as opposed to immediate goals as guides for current actions (Strathman et al. 1994). Results confirm my prediction that people high on the generation/evaluation dimension will also be high on CFC ($r = 0.44; p < .01$).

Risk Aversion. Risk aversion assesses the degree to which a person expresses a desire to avoid taking risks (Donthu and Gilliland 1996). As expected, risk aversion is positively related both to peoples’ tendency to generate and evaluate potential consequences ($r = 0.30, p < .01$) and to specifically focus on negative outcomes ($r = 0.32, p < .01$).

Constructs related to self-regulation approach

I expect that the four established constructs studied here that assess individuals' self-regulation approach (optimism, promotion regulatory focus, prevention regulatory focus, defensive pessimism) should all be significantly related to the positive focus and negative focus dimensions of EPO. On the other hand, they are not expected to be related to the generation / evaluation dimension.

Optimism. Optimism was measured using the revised version of the Life Orientation Test (LOT), which assesses generalized expectancies for positive versus negative outcomes (Scheier, Carver, and Bridges 1994). As expected, optimism is positively correlated with positive outcome focus ($r = 0.44, p < .01$), and negatively correlated with negative outcome focus. ($r = -0.49, p < .01$). As recommended by some researchers (Marshall et al. 1992), I also calculated separate optimism and pessimism scores, and found very similar results.

Promotion and Prevention Regulatory Focus. Higgins et al. (2001) developed the Regulatory Focus Questionnaire (RFQ) to measure both chronic-promotion and chronic-prevention goal orientations within individuals. My results show that a chronic promotion focus is related to peoples' tendency to focus on positive outcomes ($r = .20, p < .01$), and that a chronic prevention focus is related to peoples' tendency to focus on negative outcomes ($r = .24, p < .01$). I also administered the Selves Questionnaire (Higgins et al. 1986), which measures chronic ideal and chronic ought orientation, which are associated with promotion and prevention regulatory focus respectively. I found that, as expected, chronic ideal orientations has positive correlation to positive outcome focus ($r = .26$), and negative outcome focus has a positive correlation with chronic ought orientation ($r = .25$).

Defensive pessimism. I used the Optimism-Pessimism Prescreening Questionnaire (Norem and Cantor 1986) to identify self-reported use of optimistic or defensively pessimistic strategies. As expected, defensive pessimism is positively related to negative outcome focus ($r = .50, p < .01$) and negatively related to positive outcome focus ($r = -.35, p < .01$).

Tests for social desirability biases

Because considering the consequences of one's behavior can be viewed as a socially desirable trait, I test the extent to which the EPO subscales are correlated with the measure of desirable responding proposed by Paulhus (1991). (Paulhus 1991). The average score on his Impression Management (IM) scale for my study is 4.44 ($SD = 3.18$; $\alpha = 0.78$). All three EPO subscales have relatively weak correlations with IM ($r = .16$ for generation/evaluation, $r = .01$ for positive focus, and $r = -.01$ for negative focus; $p < .05$ only for the first correlation). These results suggest that responses on these subscales are not strongly influenced by social desirability motives.

To further examine the possibility of a social desirability bias, I followed the procedure recommended by Mick (1996) and computed partial correlations between EPO and the other, related constructs discussed previously, holding impression management constant. The comparative results between simple and partial correlations revealed very small absolute differences in the range of 0.00 (for optimism and defensive pessimism) to 0.03 (for CFC), indicating no spurious correlations as a result of a social desirability bias. Next, I tested a hierarchical regression model that included (1) impression management, (2) the generation / evaluation dimension of the EPO scale, and (3) the interaction between IM and EPO as independent variables, for the purpose of predicting variance in compulsive buying – a likely consequence of EPO. Results revealed that while EPO is a significant predictor of compulsive

buying ($t(366) = -1.98, p < .05$), the interaction term is not significant ($t(366) = -1.14, p > .1$), confirming that IM does not moderate the form of the relationship between EPO and its consequence (Mick 1996).

Gender Differences

No gender differences were found in the samples collected in Study 1 in participants' scores on the three dimensions of EPO, or in the association of EPO with the other variables examined in the study.

2.3.3 Summary

Study 1 provides strong support for the psychometric properties of the EPO scale and indicates its ability to significantly further our understanding of how people process future outcomes consideration. In this study I (1) refined the EPO scale; (2) confirmed its reliability and factor structure; (3) established that social desirability bias is not a significant problem for the EPO measure; and (4) established the construct's discriminant and nomological validity by demonstrating that EPO is conceptually and empirically distinct from impulsive buying, risk aversion, need for cognition, consideration of future consequences, optimism, chronic prevention and promotion focus orientation, compulsive buying and defensive pessimism.

It should be noted that the initial conceptualization of EPO as a four dimensional construct failed to materialize in the data. I did not find adequate differentiation between the generation and evaluation dimensions of the scale. It seems that consumers' tendency to generate a variety of potential outcomes and their tendency to evaluate the likelihood and importance of

these outcomes are very closely related to each other, and have similar relationships to the same constructs and behaviors, and therefore should be examined together.

2.4 STUDY 2: PREDICTIVE VALIDITY OF THE EPO SCALE

The main goal of this study is to provide evidence of the predictive validity of the EPO scale by showing the effects of elaboration on potential outcomes on information processing and decision making. I examine whether peoples' scores on the three subdimensions of the EPO scale predict the extent to which they think about potential consequences in a decision-making situation. In particular, I expect that participants' scores on the generation/evaluation dimension will predict the number of consequences they generate when making a decision, that their scores on the positive focus dimension will predict the number of positive consequences generated, and that their scores on the negative focus dimension will predict the number of negative consequences generated.

I also assess whether scores on the positive and negative focus subscales predict the likelihood of undertaking a potentially risky endeavor. Participants' positive focus scores should have a positive influence on the likelihood of engaging in the behavior, whereas their negative focus scores should have a negative influence. Support for this prediction comes from the literature on regulatory focus, which has found that the promotion and prevention modes of self-regulation appear to foster different strategic inclinations and different attitudes towards risk (Crowe and Higgins 1997; Pham and Avnet 2004). While differential inclinations to focus on positive or negative outcomes are expected to predict consumers' reported likelihood to engage

in the presented behaviors, their scores on the generation/evaluation EPO dimension are not expected to be predictive in this case.

Finally, I examine whether the numbers of positive and negative consequences people generate when making a decision mediate the relationships between their positive and negative focus subscale scores and their likelihood to engage in a potentially risky behavior. I predict that people who focus on the positive outcomes to a higher extent are more likely to undertake risky behaviors because they generate a greater number of positive outcomes, thereby making the potential gains resulting from the behavior more salient. In contrast, people who focus on the negative outcomes to a higher extent are expected to be less likely to undertake the behaviors because they generate more negative outcomes, making possible losses more salient.

2.4.1 Method

One hundred and sixty undergraduate students participated in this study for extra course credit. Participants were presented with two scenarios, each describing a situation in which they had to make a decision. They were asked to recount their thoughts as they were deciding what to do, as well as their intentions. One scenario described a decision of whether or not to have Lasix surgery, while the other described a decision of whether or not to charge an expensive electronics good on an already heavily-charged credit card.

The order in which the scenarios were administered was counterbalanced across participants, and subsequent analysis showed that this order does not affect the results. After reading each scenario, participants were asked to list in writing the things going through their mind as they decided what to do. After they had listed their thoughts, participants were asked to indicate, on an 11-point scale, their likelihood of engaging in the behavior described in the

scenarios, where 1 was “not likely” and 11 was “very likely”. After completing these tasks for both scenarios, participants were asked to code the valences of the thoughts they had previously listed. Participants then received a new questionnaire, part of a seemingly unrelated study, that contained other measures not related to this study and the EPO scale.

Participants’ thoughts listed in response to the two scenarios were coded as belonging to one of two categories: (a) consequences, or (b) non-consequences. Coding was done by two judges unaware of the study hypotheses for all 160 participants. Inter-rater agreement was 90% for the *Lasic surgery* scenario, and 93% for the *Credit card* scenario, with disagreements resolved through discussion. As a further measure of inter-rater reliability I calculated the Kappa coefficient (Cohen 1960), which verifies that agreement between the two raters exceeds that expected by chance. Kappa was determined to be 0.83 for the Lasic surgery scenario, and 0.87 for the Credit card scenario, which indicate excellent inter-rater agreement (both coefficients significantly different from zero at $p < .001$). Consequences were classified as positive or negative based on participants’ own codings.

2.4.2 Results

For each of the participants, scores for the three EPO dimensions were calculated. I also counted the number of positive ($\bar{X}_1 = 0.89, S = 0.9$; $\bar{X}_2 = 0.51, S = 0.7$), negative ($\bar{X}_1 = 1.68, S = 1.1$; $\bar{X}_2 = 1.21, S = 0.9$), and total consequences ($\bar{X}_1 = 2.55, S = 1.4$; $\bar{X}_2 = 1.71, S = 1.1$) people generated in response to the two scenarios. Since the numbers of positive, negative, and total consequences generated are count variables and have a Poisson distribution, I employed Poisson regressions to analyze how the EPO dimensions affect them.

The results provide support for my predictions (see Table 1.5). As expected, the generation/evaluation dimension of the EPO scale is a significant predictor of the number of consequences generated in response to the two decision situations, the negative dimension is positively and significantly related to the number of negative consequences generated, and the positive dimension of the scale is positively and significantly related to the number of positive consequences generated. These results are consistent across both scenarios.²

Insert Table 1.5 about here.

I next examined the people's reported likelihood to undertake a Lasic surgery ($\bar{X} = 5.33$, $S = 2.82$) and charge an expensive item ($\bar{X} = 4.70$, $S = 2.46$). The likelihoods people reported in the two scenarios were positively and significantly correlated ($r = .18$, $p < .05$). In order to examine my predictions regarding the decisions people made in the two situations presented to them, I ran two regressions. As expected, peoples' scores on the positive focus dimension of the EPO scale are positively and significantly related to stated likelihood to undergo Lasic surgery and charge an expensive electronics item. Scores on the negative focus dimension are negatively and marginally significantly related to stated likelihood to undertake Lasic surgery, but not to likelihood to charge an expensive item.

To test for mediation, I followed the procedure recommended by Baron and Kenney (1986). As discussed above, I already ran a series of regressions and found that peoples' scores on the positive and negative dimension of the EPO scale are significant predictors of the number

² Furthermore, participants' scores on the generation/evaluation subscale are significantly related to the combined number of positive and negative consequences they generated. These results provide further evidence of the validity of the subscales, since they confirm that people with a greater general tendency to generate consequences come up with more positive and more negative consequences in a specific decision situation.

of positive and negative consequences people generate in response to the decision scenarios (step 1), and that these scores are significant predictors of their likelihood to engage in risky behaviors (step 2) (see Table 1.5). Finally, in step 3, I run regressions both with scores on the positive and negative dimensions, and with the number of positive and negative outcomes generated, as predictors of behavior likelihood. I find that the effects of the positive and negative subdimensions of the EPO scale on peoples' likelihood to engage in the risky behaviors are mediated by the number of positive and negative consequences generated in response to the scenarios, respectively. Specifically, I find that the effect of positive focus on likelihood is partially mediated by the number of positive consequences people generated in response to the first scenario ($b_{positive_focus} = 0.60, p < .01, b_{positive_consequences_1} = 0.69, p < .01$) but not mediated by the number of positive consequences people generated in response to the second scenario ($b_{positive_focus} = 0.44, p < .05, b_{positive_consequences_1} = 0.08, p > .6$). Second, I find that the effect of negative focus on likelihood is fully mediated by the number of negative consequences people generated in response to the first scenario ($b_{negative_focus} = -0.25, p < .3, b_{negative_consequences_1} = -0.44, p < .01$), but not to the second one ($b_{negative_focus} = -0.25, p < .2, b_{negative_consequences_2} = -0.22, p < .3$).

I conducted further analysis in order to address concerns about possible multicollinearity problems resulting from intercorrelations between the independent variables in my analyses. However, the VIF values are all within the acceptable range, indicating that there are no concerns about multicollinearity and coefficient instability.

2.4.3 Discussion

By providing evidence that elaboration on potential outcomes has an effect on information processing and decision making, the results of this study support the predictive validity of the EPO subscales and the viability of the elaboration on potential outcomes construct. This study experimentally established that scores on the EPO subscales are significant predictors of thought processes in a decision making situation. Furthermore results revealed that peoples' tendency to focus on the positive and negative potential outcomes predicts the decisions they made in risky situations, with positive focus scores being positively related to likelihood to engage in risky behaviors, and negative focus scores being negatively related to this likelihood.

2.5 STUDY 3: CONSEQUENCES OF ELABORATION ON POTENTIAL OUTCOMES

Earlier, I argued that elaboration on potential outcomes is an important determinant of self-regulation. However, an important question arises: does EPO incrementally explain self-regulatory behavior above and beyond what is accounted for by other constructs? In a review of the literature on self-control failure, Baumeister Heatherton, and Tice (1994) concluded that self-regulation failure is a central part of many personal and social problems in modern societies. Self-regulation failure refers to problems that arise when one intentionally tries to initiate, alter, or inhibit a specific response or behavior but fails to do so because of insufficient effort (underregulation) or because such efforts are ineffective or counterproductive (misregulation).

Self-control failure can lead to undesirable behaviors such as impulsive buying, excessive credit card debt, overeating, procrastination and task avoidance, and excessive drinking. In this

study I examine whether consumers' tendency to think about the implications of their behaviors can predict the extent to which they engage in these behaviors. The effectiveness of self-control depends on multiple factors, including chronic traits, possession of clear, well-defined standards and goals, and careful monitoring of one's behavior (e.g., Baumeister, et al. 1994; Baumeister and Heatherton 1996; Baumeister 2002). Consumers who generate and evaluate a variety of potential consequences when deciding how to behave, as measured by the generation/evaluation dimension of the EPO scale, should be more likely to persist in goal pursuit and exercise effective self-regulation. Elaborating on the potential implications of one's behavior is likely to draw attention to possible desired consequences and warn against possible negative ones, making goals and standards more prominent and aiding self-regulation efforts.

2.5.1 Procedure

To show that elaboration on potential outcomes predicts a number of (un)desirable consumer behaviors above and beyond what other, related constructs predict, I administered a survey that included measures of procrastination, tendency to finish projects on time, credit card use, healthy eating, and exercising. To enhance the external validity of the findings for this study I recruited 302 adults (131 male and 171 female) ranging in age from 20 to 70 years old. After completing a distracter task, subjects were given a second, seemingly unrelated questionnaire that contained the EPO scale as well as measures of four conceptually related traits used to predict self-regulation behaviors in past research: cognitive self-control, consideration of future consequences, risk aversion, and buying impulsiveness.

Independent Variables

Generation and evaluation of potential outcomes. The generation/evaluation dimension of the EPO scale measures peoples' tendency to generate and evaluate the potential outcomes of their decisions and actions. The average score on this dimension for this sample was 4.78 ($s = 1.08$; Cronbach's $\alpha = 0.90$).

Self-control. Research has suggested that self-regulation is a central and durable feature of personality (Mischel et al. 1988; Baumeister 2002). Most research on self-regulation suggests that some people chronically have more problems with self-control than others. I assess self-control using the Cognitive Self-Control Scale, a 21 item scale that measures skills used to regulate affect and cognitions (Rohde et al. 1990). For this sample, the average self-control score is 4.57 ($s = .75$; Cronbach's $\alpha = 0.87$).

Other Constructs. I also included three scales for constructs discussed in study 1: Consideration of Future Consequences (Strathman et al. 1994), Risk Aversion (Donthu and Gilliland 1996), and Buying Impulsiveness (Rook and Fisher 1995). The average score for the Consideration of Future Consequences scale in the sample is 4.40 ($s = .70$; Cronbach's $\alpha = 0.77$). This sample's average risk aversion score is 4.52 ($s = 1.06$; Cronbach's $\alpha = 0.60$), while the average impulsiveness score is 3.40 ($s = 1.25$; Cronbach's $\alpha = 0.90$).

Dependent Variables

Following Baumeister et al.'s review (1994) of different spheres of self-regulation failure, I included in the study a number of behavioral contexts that reflect behaviors that can result from lack of self-regulation: procrastination, credit card abuse, excessive drinking, unhealthy eating, and avoidance of exercise.

Procrastination. Because a particular task is associated with unpleasant emotions, people who procrastinate concentrate on eliminating these negative emotions by avoiding the task altogether (Baumeister et al. 1994; Ferrari, Johnson, and McCown 1995). As a result, they suffer from considerable stress and often perform far below their capabilities. I measure procrastination using the 15 item Adult Inventory of Procrastination (Ferrari, Johnson, and McCown 1995). My sample's average procrastination score is 3.24 ($s = .95$; Cronbach's $\alpha = 0.86$).

Credit Card Abuse. A second area in which people suffer from poor self-control is money management and more specifically credit card misuse (Baumeister et al. 1994). Credit cards encourage people to buy things without immediately paying for them, making only a minimum payment each month, and carrying the balance of the debt at a very high interest rate. There are several approaches to using credit cards, and these may be linked to peoples' self-regulatory style and effectiveness (Baumeister et al. 1994). I asked participants whether they have credit cards, and those who do then reported how often they pay their credit card balance in full. Their responses ranged from 1 (Never, I always carry a balance) to 4 (I pay my entire balance every month). (Note that for this behavior, only 258 respondents possessed at least one credit card.).

Alcohol Abuse. Baumeister and colleagues (1994) identified alcohol consumption as one area where self-regulation failure is particularly dangerous and destructive. I measured alcohol abuse and excessive drinking in terms of frequency of drinking by a validated index (Newcombe, Measham, and Parker 1995), which assesses the frequency of drinking, ranked on a scale ranging from 1 (never) to 10 (every day).

Healthy Diet and Regular Exercise. Finally, I measured two other domains where effective self-regulation is particularly important – keeping a healthy diet and exercising

regularly. Groups that have poor nutritional habits are especially likely to develop weight problems (Sobal and Stunkard 1989). I predict that people who are higher on EPO will have a healthier diet, since they will be more likely to consider the consequences of ingesting unhealthy food on a regular basis, more likely to consume healthy food, and more likely to engage in compensatory behaviors such as exercise. I measured healthy diet in terms of the frequency of consumption of fruits and vegetables – two of the major components of the Healthy Eating Index developed by the Center of Nutrition Policy and Promotion at the U.S. Department of Agriculture (see Basiotis et al. 2004). I also assessed exercise habits by asking the frequency of physical activity (Laaksonen et al. 2002). Both frequencies were assessed on a 10 point scale ranging from 1 (never) to 10 (every day).

2.5.2 Results and Discussion

To assess whether EPO predicts self-regulation failure in the different behavioral domains above and beyond the effects of other, related traits, I employed a multivariate analysis of variance with the generation/evaluation dimension of the EPO scale, self-control, impulsiveness, consideration of future consequences, and risk aversion as independent variables, and measures of drinking, healthy eating, exercising, money management, and procrastination as dependent variables. I employed MANOVA in order to take into consideration the relationships that exist between the dependent measures. As can be seen in Table 1.6, the tendency to generate and evaluate potential outcomes was a significant and substantial predictor for all the dependent variables.

Insert Table 1.6 about here

I conducted further analysis in order to address concerns about possible multicollinearity problems resulting from intercorrelations between the independent variables. However, the VIF values are all within the acceptable range, indicating that there are no concerns about multicollinearity and coefficient instability.

To further confirm that EPO predicts self-regulation failure behaviors above and beyond the effects of other, related traits, I conducted additional analysis and employed a series of stepwise regression models (e.g., Russell, Norman, and Heckler 2004). In each model, self-control, impulsiveness, consideration of future consequences, and risk aversion were first entered as independent variables that might explain a specific behavior. EPO was entered into the model in the second step with the other four independent variables retained in the model. I found strong evidence of the incremental predictive ability of EPO. Results revealed that tendency to generate and evaluate potential outcomes was a significant and substantial predictor in all regression models I estimated, and the incremental proportion of variance accounted for by the generation/elaboration score led to a significant improvement in R^2 between step 1 and step 2, with $p < .05$ for all but one model (healthy eating).

Data collected in this study showed that consumers' tendencies to generate and evaluate potential outcomes is a significant predictor of behaviors resulting from (in)effective self-regulation such as drinking, healthy eating, exercising, money management, and procrastination, thus further establishing the predictive validity of the construct. This is evidence that the EPO construct and its measurement can increase our understanding of the determinants of effective consumer self-regulation. Furthermore, as a means of establishing the construct's discriminant validity, I demonstrated that EPO is conceptually and empirically distinct from cognitive self-control, impulsiveness, consideration of future consequences, and risk aversion, as it possesses

superior predictive power above and beyond these other independent variables employed in the models.

2.6 STUDY 4: EPO AND SELF-REGULATION IN INVESTING FOR RETIREMENT

To this point I have demonstrated that the EPO scale is a reliable and valid instrument and the EPO construct is an important determinant of self-regulation. In this fourth study I provide evidence that consumers with higher levels of EPO exhibit more efficient self-regulation when faced with a specific choice. Furthermore, I show experimentally that elaboration on potential outcomes can be primed and that this priming can improve self-regulation for consumers with lower levels of EPO as well.

Recent studies of consumers' investments show that consumers generally under-invest in savings (e.g., Morgenson 2003). Since investment decisions have major implications for investors' future financial welfare, this consumer tendency is likely to create significant problems in the future for both individual consumers and society as a whole. Researchers have started to examine consumer investment decisions in view of self-regulation theory. For example, Zhou and Pham (2004) argued that since investment decisions are typically made to fulfill goals that are distant in time, these decisions are likely to be guided by processes of self-regulation. Other researchers have also used self-regulation theory to examine consumer investment decisions, and found a relationship between failure to invest and self-control (e.g., Laibson, Repetto, and Tobacman 1998).

As I have already shown, generation and evaluation of variety of potential outcomes in the pre-decision stage is an important determinant of effective self-regulation, since it helps consumers to transcend the immediate situation and consider the future consequences of their behaviors. Since having retirement savings is a desired goal for consumers, I expect that outcome elaboration will prompt participants to regulate their behavior in a way that brings them closer to this desired goal. Therefore, I expect that high EPO investors – when compared to low EPO investors – will be more likely to consider the implications of saving versus not saving for retirement, more likely to exercise self-regulation, and therefore will invest more money for their retirement. Thus:

Hypothesis 1: Participants with stronger tendencies to generate and evaluate potential outcomes will invest more money in the proposed 401 (k) plan than participants with weaker tendency to elaborate on potential outcomes.

Furthermore, in this study, I experimentally test whether pre-decision elaboration on potential outcomes can increase self-regulation effectiveness, at least on a temporary basis. If EPO does indeed lead to more effective self-regulation, then encouraging investors to transcend the immediate situation and consider potential future outcomes should improve self-regulation efforts for that group of investors who are not normally inclined to engage in this type of elaboration. I predict that priming consumers to consider the potential outcomes of behavior will aid the low EPO group and enhance their self-regulation effectiveness as well, leading to higher levels of investment:

Hypothesis 2: Priming EPO will improve self-regulation efforts for participants who are not normally prone to elaborating on potential outcomes, increasing the amount of money they allocate to the proposed 401 (k) plan.

2.6.1 Method

Participants in this study were 95 week-day air travelers who were intercepted at a major airport. They were given a questionnaire asking them to consider a scenario where they just began working for a company that offered them an opportunity to invest in a 401 (k) retirement plan. Study participants were given general information about 401 (k) plans, and told that they had \$15,000 in discretionary income that they could spend as they wished, or invest some or all of it in the 401 (k) plan. Respondents were then asked to indicate whether or not they would invest in the 401 (k) plan, and, if so, how much of the \$15,000 they would invest.

Respondents were randomly assigned to one of two experimental conditions. In one condition, they read the scenario and then were asked immediately to indicate how much of the \$15,000 they would invest in the 401 (k). In the other condition, elaboration on potential outcomes was primed after participants read the scenario but before they provided their responses. To prime outcome elaboration, I used an adaptation of Gollwitzer's deliberative mindset priming procedure (Gollwitzer 1990), asking people to consider the positive and negative potential outcomes of investing or not investing in the 401 (k) plan.

After participants decided how much to invest, they were questioned about their real-life retirement investments. They were asked to indicate whether they have a 401 (k) type of plan or a traditional pension plan, and if so for how long they have had these. Next, I administered the generation/evaluation dimension of the EPO scale ($\alpha = .93$). I only measured this dimension of the EPO scale, as I am interested in examining self-regulation effectiveness. Finally, I measured participants' involvement with investing, their gender, age, income, and employment status.

2.6.2 Results and Discussion

To test the hypotheses, I ran a regression on the amount of money participants invested in the proposed 401 (k) plan. I included EPO, EPO priming manipulation, and their interaction as independent variables, and issue involvement, gender, age, income, and employment status as controls. The analysis revealed that both EPO ($b = 2977$, $t = 4.52$, $p < .01$) and EPO priming manipulation ($b = 10,286$, $t = 2.69$, $p < .01$) are significant predictors of amount of money invested. I also found a significant two-way interaction between EPO priming condition and consumers' tendency to generate and evaluate potential outcomes ($b = -2142$, $t = -2.37$, $p < .05$). Subsequent examination of group means revealed that in the no-priming condition investors with stronger outcome elaboration tendencies allocated nearly twice as much money to the 401 (k) plan than investors with weaker such tendencies ($M_{high\ EPO} = \$11,053$; $M_{low\ EPO} = \$6,470$, $t(94) = 4.28$, $p < .01$). However, pre-decision outcome elaboration priming equated the amounts invested by the two groups of investors by almost doubling low EPO investors' participation in the 401 (k), and not affecting high EPO investors' participation ($M_{high\ EPO} = \$10,793$; $M_{low\ EPO} = \$10,217$; $t(94) = .53$, $p > .1$). Results confirmed my hypotheses that consumers who usually focus on future outcomes when deciding how to behave exert more self-regulation, as indicated by their investments for retirement, and encouraging pre-decision elaboration on potential outcomes leads to improved self-regulation for consumers with lower EPO levels as well.

Furthermore, I looked at whether consumers' tendency to generate and evaluate potential outcomes affects their real-life choices, by examining whether investors' EPO tendencies predict the likelihood that they have traditional pension plans and 401 (k) type of plans. I expected that EPO would not be a significant predictor of whether or not participants have traditional pension plans – defined benefits type of plans, which are not optional and do not require employees to

make investment decisions. However, I expected that EPO will be a significant positive predictor of the likelihood that participants have a 401 (k) type of plans – defined contributions types of plans, where participation is decided by employees and requires them to contribute part of their income. After deleting participants who are unemployed or employed part-time, I used the remaining 71 participants in two logistic regressions on whether or not they have a traditional pension plan and a 401 (k) type of plan. Results revealed that, as predicted, participant with higher tendencies to generate and evaluate potential outcomes, as compared to participants with lower such tendencies, are not more likely to have traditional pension plans ($b = .12$, odds ratio = 1.14, $p > .1$), but are significantly more likely to have a 401 (k) type of plan, ($b = .76$, odds ratio = 2.14, $p < .05$).

Results from this study provide strong support for the validity of the EPO scale, and the viability of the EPO construct. Besides showing that individual differences in outcome elaboration tendencies are important determinants of self-regulation, this study goes one step further and shows that consumers can be aided in exercising better self-regulation through priming them to consider the potential outcomes before making a decision. Furthermore, I found that investors with strong EPO tendencies are twice as likely to have an optional type of retirement investment instrument such as a 401 (k) plan.

2.7 GENERAL DISCUSSION

Effective self-regulation involves seeing the immediate situation in terms of future concerns, values and goals (Carver and Scheier 1981). In this essay, I examine an important determinant of self-regulation: consumers' tendency to transcend the immediate situation and

elaborate on the potential outcomes when deciding how to behave. Building on past self-regulation research, I argued that EPO is essential for behavior regulation and exertion of effort in one's goals pursuit. I showed that people who are more inclined to consider potential consequences are more likely to engage in self-regulation in their pursuit of a desired result. Furthermore, I showed that encouraging pre-decision elaboration on potential outcomes improves self-regulation for consumers who are not inclined to engage in this type of elaboration when deciding how to behave.

The current research extends the literature on self-regulation by examining the effects of processes that take place in the pre-decision stage of decision making on subsequent self-regulation. I provide conceptual and empirical evidence that proclivity towards pre-decision outcome elaboration is an important determinant of self-regulation. In spite of the existence of individual differences in elaboration on potential outcomes, and their importance for the self-regulation of behavior, this construct has not been examined sufficiently in past research, nor to date has there been a good instrument to measure it. In this essay I conceptualize the construct, and develop a psychometrically sound instrument that captures individual differences in elaboration on potential outcomes.

This research also extends the literature on expectations about the future in several important ways. By incorporating the three aspects of elaboration on potential outcomes – generation and evaluation of consequences, focus on the positive, and focus on the negative ones, my conceptualization brings together and integrates diverse constructs that have attempted to depict the process of consequences consideration in the past. Past research on consideration of future consequences has employed simple conceptualizations of the construct, and has focused on a single dimension of the process, without the complicating influence of other dimensions.

Examining these three factors together provides a more complete presentation of the process people go through when considering potential consequences, and allows researchers to examine all aspects of elaboration on potential outcomes. The EPO scale I developed captures these three dimensions and for the first time provides a general and context-independent measure of elaboration on potential outcomes.

2.7.1 Future research directions

The objective of this research was to develop a better understanding of the process of elaboration on potential outcomes by establishing a measure that would advance the study of this pre-decision process in various situations and domains. I have proposed EPO as a multi-dimensional construct to capture the complexity of the process and its different aspects. Through a thorough research program based on established scale development standards (e.g., DeVellis 2003), I introduced and tested a reliable instrument to measure the construct. In order to start establishing EPO's validity I conducted a series of studies to show its relationship to other existing constructs and its ability to predict decisions and behaviors related to consumer self-regulation. However, validity testing of a newly established construct is an ongoing process. While I have shown here that elaboration on potential outcomes is related, yet distinct from a variety of other important psychological constructs such as impulsiveness, risk aversion, need for cognition, consideration of future consequences, optimism, there is need for further discriminant and nomological testing. Thus an effort to more fully validate the EPO construct should include a broader range of constructs and behaviors. Future research should continue to examine EPO in relation to other self-regulation determinants such as self-efficacy (Bandura 1997), ego depletion (e.g., Baumeister et al. 1998), conscientiousness (Bem and Allen 1974), long-term planning

(Ward and Morris 2005), delay of gratification (Mischel, Shoda and Peake 1988), and time inconsistent preferences (Hoch and Loewenstein 1991).

As discussed earlier, self-regulation failure in various domains of consumers' lives creates significant problems for both individuals and society as a whole. I found that lack of elaboration on potential outcomes is related to compulsive buying behavior, obesity, self-control, procrastination, and a variety of undesirable consumer behaviors such as excessive drinking, credit card debt, and failure to invest for retirement. Future research should continue to examine how chronic and induced elaboration on potential outcomes might affect consumer self-regulation in other important consumer domains.

One consumer domain where self-regulation failure is particularly problematic is impulsive buying. Americans tend to spend much more than they can afford resulting in significant amounts of consumer debt, and most financial problems associated with shopping are due to impulsive purchases (Rook 1987). Baumeister et al. (1994) point out that transcendence failure is a central cause for excessive impulsive buying. My results also show that considering the outcomes of behavior is negatively correlated with impulsiveness and compulsive buying. Since disregard for the consequences (e.g., potential poverty) seems to be an important component of impulsive buying, encouraging pre-decision outcome elaboration in a shopping context might be able to help consumers resist their impulses for excessive buying.

I found that people who tend to focus on the positive (negative) outcomes have stronger chronic-promotion (chronic-prevention) goal orientation and stronger chronic-ideal (chronic-ought) self orientation. These findings suggest that people who tend to focus on the positive outcomes when elaborating on the implications of their actions are more likely to construe their goals in terms of promotion – aspiring to achieve desirable outcomes, and people who tend to

focus on the negative outcomes are more likely to construe their goals in terms of prevention – aspiring to avoid undesirable outcomes. These findings have important implications for the regulatory focus literature, and future research should more closely examine the role of chronic outcome focus in consumers' construal of goals.

I argued conceptually and showed empirically that EPO is a stable individual trait, and there are enduring individual differences in chronic tendencies to elaborate on potential outcomes. However, I also showed that encouraging EPO can improve self-regulation for individuals who do not normally engage in this type of elaboration, which suggests that EPO tendencies can temporarily be altered. The possibility that outcome elaboration is affected by situational determinants should be explored further. For example, elaboration on potential outcomes could have greater effects for high-involvement than low-involvement decisions. For low-importance and low-involvement decisions people appear to optimize time and effort, while downplaying potential consequences (Einhorn and Hogarth 1981). Therefore, in such situations consumers may be less likely to engage in pre-decision outcome elaboration. On the other hand, in high-involvement situations, optimization of potential outcomes is very important, and outcome elaboration might be more likely. Research should examine whether elaboration on potential outcomes is more likely to occur in high-importance contexts involving more extensive problem solving behaviors, where the frequency of prior decision-making is relatively low.

2.7.2 Limitations

In addition to its important contributions and implications, however, this research has some limitations to be addressed in future research. I showed that both chronic and induced elaboration on potential outcomes improves self-regulation effectiveness. Even though I

presented theoretical explanation of this relationship, I did not empirically examine the mechanism through which EPO affects self-regulation. Future research should study the mechanisms through which elaborating on the positive and negative outcomes in the pre-decision stage affect subsequent self-regulation. It is possible, for example, that deliberating on potential positive consequences of pursuing a goal aids self-regulation and strengthens goal commitment by making desired standards and ideals more salient in people's minds, while considering potential negative consequences accomplishes the same result by making potential threats to achieving a desired goal more salient, which prompts people to strengthen their commitment to the goal.

In this study I took one step towards understanding elaboration on potential outcomes. Certainly, refinements in conceptualization and measurement are possible and desirable. Researchers should also use the measurement instrument developed in this article in future studies and advance our knowledge of the elaboration on potential outcomes construct.

Table 1.1. Confirmatory factor analysis item loadings

Item	Factor 1	Factor 2	Factor 3
Generation/Evaluation dimension, $\alpha = .88$			
1. Before I act I consider what I will gain or lose in the future as a result of my actions.	.70		
2. I try to anticipate as many consequences of my actions as I can.	.78		
3. Before I make a decision I consider all possible outcomes.	.77		
4. I always try to assess how important the potential consequences of my decisions might be.	.80		
5. I try hard to predict how likely different consequences are.	.70		
6. Usually I carefully estimate the risk of various outcomes occurring.	.74		
Positive Dimension, $\alpha = .87$			
7. I keep a positive attitude that things always turn out all right.		.88	
8. I prefer to think about the good things that can happen rather than the bad.		.80	
9. When thinking over my decisions I focus more on their positive end results.		.77	
Negative dimension, $\alpha = .87$			
10. I tend to think a lot about the negative outcomes that might occur as a result of my actions.			.61
11. I am often afraid that things might turn out badly.			.80
12. When thinking over my decisions I focus more on their negative end results.			.89
13. I often worry about what could go wrong as a result of my decisions.			.83

Table 1.2. Confirmatory factor analysis results

Models	3 factor correlated model, with Generation&Evaluation dimensions combined	4 factor correlated model	3 factor uncorrelated model	Unidimensional model
χ^2	170.05	157.19	260.65	2087.14
Degrees of Freedom	62	59	65	65
$\Delta\chi^2$	-----	(12.86)	90.60	1917.09
χ^2 / df	2.74	2.62	4.01	32.1
Root Mean Square Error of Approximation	.069	.067	.091	.29
Goodness of Fit Index	.94	.94	.90	.53
Adjusted Goodness of Fit Index	.90	.91	.86	.34
Comparative Fit Index	.96	.96	.91	.46
Incremental Fit Index	.96	.96	.91	.46
Relative Fit Index	.92	.92	.87	.34

Note. Chi-square differences, $\Delta\chi^2$, represent comparisons of each model with the three-factor correlated model.

Table 1.3. Descriptive statistics and reliability results

Subscale	Mean	Standard Deviation	Cronbach's alpha	Correlation with Generation/ Evaluation	Correlation with Positive focus	Correlation with Negative focus
Generation/ Evaluation	4.99	1.01	.90	1		
Positive focus	4.79	1.25	.86	-.03	1	
Negative focus	4.07	1.23	.88	.33 **	-.50 **	1

Note. Values based on combined sample, n = 735

** $p < .01$

Table 1.4. Related constructs and their relationship with EPO

Construct	Description	Predicted Relationship with EPO	Scale Source	Scale Characteristics	Results *
<i>Constructs related to self-regulation effectiveness</i>					
Impulsive Buying (n = 367)	Rook (1987) suggests that an impulse's urge toward immediate action discourages consideration of the behavior's potential outcomes and encourages people to act with little or no regard for long-term consequences (see also Stigler and Becker 1977; Strotz 1956). Wishnie (1977) suggests that individuals with impulsive pathologies seem to be living in a state of constant but stable chaos with little perspective about the future consequences of their current behavior.	Negative correlation with generation/evaluation	Rook and Fisher (1995)	Mean = 3.75 s = 1.39 alpha = 0.94	$r = -0.33^a, p < .05$ $r_{\text{positive}} = 0.11^b, \text{n.s.}$ $r_{\text{negative}} = -0.12^c, \text{n.s.}$
Risk Aversion (n = 367)	People who are more averse to taking risks should be more likely to carefully assess the potential consequences of their behavior before undertaking something. Furthermore, research has found a positive relationship between peoples' risk aversion and their tendency to attend to and weigh potentially negative outcomes more heavily (Schneider and Lopes 1986).	Positive correlation with generation/evaluation Positive correlation with negative focus	Donthu and Gilliland (1996)	Mean = 4.31 s = 1.15 alpha = 0.72	$r = 0.30^a, p < .01$ $r = 0.32^a, p < .01$ $r_{\text{positive}} = -0.08^b, \text{n.s.}$
Need for Cognition (n = 367)	Need for cognition is conceptualized as the relative proclivity to process information (Cacioppo and Petty 1982; Cacioppo et al. 1996). NFC and EPO represent different types of information processing. NFC measures consumers' tendency to engage in and enjoy thinking in general, while EPO measures their tendency to engage in a specific type of thinking – elaboration on potential outcomes. Persons scoring high on the need for cognition scale who intrinsically enjoy thinking, should be more likely to generate and evaluate potential outcomes, while individuals low in need for cognition who tend to avoid effortful cognitive work should be less likely to elaborate on potential outcomes.	Positive correlation with generation/evaluation	Wood and Swait (2002)	Mean = 5.10 s = 1.10 alpha = 0.86	$r = 0.13^a, p < .01$ $r_{\text{positive}} = 0.01^b, \text{n.s.}$ $r_{\text{negative}} = -0.14^a, \text{n.s.}$
Consideration of Future Consequences	This construct captures the degree to which people consider potential distant outcomes rather than immediate ones when they choose their present behavior. CFC measures consumers' temporal focus on the short vs. long term implications of behavior, while EPO measures their tendency to anticipate	Positive correlation with generation/evaluation	Strathman et al (1994)	Mean = 4.12 s = 0.79 alpha = 0.84	$r = 0.43^a, p < .01$ $r_{\text{positive}} = -0.09^b,$

(n = 367)	these implications in the first place. I expect that there will be a positive relationship between these tendencies, as Strathman et al. (1994) argue that high-CFC individuals should be more likely to generate and consider possible future outcomes even when future consequences are ambiguous.				n.s. $r_{\text{negative}} = 0.20^b$, n.s.
Compulsive Buying (n = 367)	While initially providing some perceived benefits, compulsive buying is a chronic behavior that typically “becomes very difficult to stop and ultimately results in harmful consequences” (O’Guinn and Faber 1989, 155). Compulsive buying represents a major failure of self-regulation efforts; compulsive buyers who amass unmanageable amounts of debt can create economic and emotional problems for themselves and their families (O’Guinn and Faber 1989), so I expect that they are less likely to elaborate on potential outcomes.	Negative correlation with generation/evaluation	Faber and O’Guinn (1992)	Mean = 2.59 s = 1.06 alpha = 0.82	$r = -0.25^a$, $p < .01$ $r_{\text{positive}} = 0.02^b$, n.s. $r_{\text{negative}} = 0.03^b$, n.s.
Constructs related to self-regulation approaches					
Optimism (n = 163)	Optimism describes peoples’ generalized positive outcome expectancies about the future, while pessimism depicts their generalized negative expectancies. Research has shown that both specific and general expectancies have distinctive effects on peoples’ motivation and behavior, and represent different constructs which explain unique variance when examined together (Mischel et al. 1996; Scheier et al 1989). Optimism/positive focus and pessimism/negative focus are distinct, yet correlated. Optimism/pessimism describes generalized outcome expectancies about the future, while the positive and negative dimensions of elaboration on potential outcomes focus on specific expectancies of positive and negative potential outcomes that might occur as a result of one’s actions.	Positive correlation with positive outcome focus Negative correlation with negative outcome focus	Scheier, Carver, and Bridges (1994)	Mean = 4.14 s = 0.88 alpha = 0.76	$r = 0.43^a$, $p < .01$ $r = -0.49^b$, $p < .01$ $r_{\text{generation/evaluation}} = -0.08^c$, n.s.
Regulatory Focus (n = 135)	Regulatory focus theory (Higgins et al. 2001) differentiates between promotion pride, which originates from achieving positive outcomes and involves self-regulation towards the achievement of ideals, from prevention pride, which arises from avoiding negative outcomes and involves self-regulation towards security. The attainment of positive outcomes is emphasized by people who are promotion focused and try to bring themselves into alignment with their ideal selves. The avoidance of negative outcomes is emphasized by people who are prevention focused and try to bring themselves into alignment with their ought selves.	Positive correlation of promotion focus and positive outcome focus Positive correlation of prevention focus and negative outcome focus	Higgins <i>et al.</i> (1986)	<u>Promotion focus</u> Mean = 3.75 s = 0.47 alpha = 0.53 <u>Prevention focus</u> Mean = 3.20 s = 0.80 alpha = 0.81	$r = 0.20^a$, $p < .01$ $r_{\text{generation/evaluation}} = 0.08^b$, n.s. $r = 0.24^a$, $p < .01$ $r_{\text{generation/evaluation}} = 0.23^a$, n.s.

	Similarly to the way people tend to approach self-regulation with different reference values in mind (i.e., positive versus negative), they also tend to approach elaboration on potential outcomes with a different focus – positive versus negative, and these two tendencies in people are related to each other.				
Defensive Pessimism (n = 163)	The strategy of defensive pessimism involves setting unrealistically low expectations in a risky situation in an attempt to harness anxiety so that performance is unimpaired (Norem and Cantor 1986). This strategy functions defensively in that it prepares individuals for the possibility of failure. Defensive pessimists tend to set significantly lower expectations for their performance than optimists. People using this strategy think about worst-case scenarios as they anticipate upcoming situations and enter those situations expecting the worst (Norem and Cantor 1986; Norem and Illingworth 1993).	Positive correlation with negative outcome focus Negative correlation with positive outcome focus	Norem and Cantor (1986)	<u>Negative outcome focus</u> Mean = ? s = ? alpha = 0.76 <u>Positive outcome focus</u> Mean = ? s = ? alpha = 0.63	$r = 0.50^a, p < .01$ $r = -0.35^b, p < .01$ $r_{\text{generation/evaluation}} = 0.05^c, \text{n.s.}$

* Different superscripts indicate that the correlations are significantly different from each other, $p < .05$.

Table 1.5. Study 2 results. Regression coefficients

Independent variables			
	Generation/Evaluation dimension score	Positive dimension score	Negative dimension score
Dependent variables			
Number of consequences, scenario 1 ^	.17 ***	.06	.07
Number of consequences, scenario 2 ^	.14 **	.02	.09
Number of positive consequences , scenario 1 ^	.20 **	.26 ***	-.08
Number of positive consequences, scenario 2 ^	.09	.46 ***	.04
Number of negative consequences, scenario 1 ^	.14 **	-.02	.15 **
Number of negative consequences, scenario 2 ^	.16 **	-.10 *	.11 *
Likelihood to undertake the risky endeavor, scenario 1 #	-.30	.76 ***	-.31 *
Likelihood to undertake the risky endeavor, scenario 2 #	-.33	.46 **	-.22

Note. ^ Coefficients from a Poisson regression. # Coefficients from an Ordinary Least Squares regression.

*** $p < .01$. ** $p < .05$. * $p < .10$

Table 1.6. Study 3, MANOVA results.

	Overall effect		DV = Procrastination		DV = Alcohol Abuse		DV = Healthy Diet		DV = Regular Exercise		DV =Credit Card Abuse (N=258)	
Source of variation	<i>Wilks' Lambda</i>	Significance	<i>MS</i>	Significance	<i>MS</i>	Significance	<i>MS</i>	Significance	<i>MS</i>	Significance	<i>MS</i>	Significance
Generation/Evaluation	0.93	$F = 4.51$ ***	39.7	$F = 56.16$ ***	247.9	$F = 56.75$ ***	84.1	$F = 13.99$ ***	55.1	$F = 8.84$ ***	18.1	$F = 18.10$ ***
Self-control	0.94	$F = 3.57$ ***	8.3	$F = 11.7$ ***	40.0	$F = 9.15$ ***	20.0	$F = 3.33$ *	1.1	$F = 0.17$	1.0	$F = 1.04$
Impulsiveness	0.96	$F = 2.21$ *	9.0	$F = 12.69$ ***	6.6	$F = 1.51$	1.9	$F = 0.31$ $p < .6$	0.7	$F = 0.11$	4.6	$F = 4.59$ **
Consideration of Future Consequences	0.98	$F = 1.35$	6.0	$F = 56.16$ **	9.9	$F = 2.27$	1.0	$F = 0.17$ $p < .7$	2.4	$F = 0.39$	0.2	$F = 0.22$
Risk Aversion	0.99	$F = 0.63$	0.2	$F = 0.26$ *	11.9	$F = 2.73$ *	0.1	$F = 0.09$ $p < .8$	0.9	$F = 0.14$	0.4	$F = 0.55$

Note. *** $p < .01$. ** $p < .05$. * $p < .10$

3.0 SECTION III

ESSAY 2: MODERATORS OF THE SUSCEPTIBILITY TO DESCRIPTIVE VARIANCE EFFECTS IN INVESTMENT DECISION MAKING

Individual investors represent a large and growing part of the financial markets (NASD Investor Education Foundation *Annual Report*, 2006). Several converging trends are responsible for this phenomenon, including the availability of on-line investing, a growth in the number and types of investment vehicles, and a shift from the use of defined benefit to defined contribution retirement plans (e.g., 401k's). As a result, more individuals than ever before are participating in financial markets, yet many possess only minimal relevant knowledge or fail to receive appropriate training. The field of behavioral finance has shown that investors are not impervious to judgmental biases demonstrated in other decision-making domains (e.g., Lifson and Geist 1999; Shiller 2006; Thaler 1993). Since investment decisions have major implications for consumers' future financial welfare, there is a great need for research providing insights into how ordinary consumers make investment decisions and identifying potential ways to improve their decision making processes.

In this essay I add to the behavioral finance research stream by identifying and explaining an important anomaly in investment behavior – the tendency to fall prey to the effects of descriptive variance, which create market-level anomalies and lead to sub-optimal investment choices. Descriptive variance effects emerge when individuals make different decisions as a function of how information is presented to them, even though the substance of the information

is unchanged. With a few exceptions (e.g., Hamilton and Biehal 2005; Johnson, Tellis, and MacInnis 2005; Madrian and Shea 2001; Rubaltelli et al. 2005), research of descriptive variance effects in the domain of investment decision making has been scarce, and more research is needed on the potentially biasing effects that descriptive variance examples like framing and information presentation can have on investors' decisions.

I explore an important factor that explains why some individuals are more susceptible than others to the biasing effects of descriptive variance, and propose a potential solution to alleviate this bias. In order to make thoughtful and balanced investment decisions, both potential gains and potential losses should generally be given consideration. However, not all investors engage in such thorough pre-decision consideration of potential outcomes. Past research has found that people differ in their tendency to engage in pre-decision outcome consideration, with some people more inclined than others to engage in elaboration on potential outcomes (EPO) when deciding how to behave (Yordanova, Inman, and Hulland 2006). In this essay, I contribute to the behavioral finance literature by showing that investors with a stronger chronic tendency to engage in pre-decision outcome elaboration are less likely to fall prey to the effects of descriptive variance.

Across three studies, I employ different operationalizations of descriptive variance, and consistently find that investors who are chronically low in EPO (i.e., have a weaker tendency to elaborate on both positive and negative potential outcomes) are more susceptible to descriptive variance effects when compared to investors who are chronically high in EPO. Furthermore, I show that EPO can be stimulated if individuals are encouraged to elaborate on the potential outcomes of investing before making an investment decision.

The remainder of the essay is organized as follows. First, I review past literature dealing with the effects of descriptive variance on choice. I then look at research related to EPO and discuss how this individual-specific, pre-decision process can have an impact on the extent to which investors are influenced by descriptive variance effects when evaluating investment opportunities. Next, I present three studies that show how the tendency to engage in EPO – by drawing attention to alternative frames of reference – attenuates the negative effects of information framing and information presentation. I conclude with a discussion of implications, limitations, and suggestions for future research.

3.1 DESCRIPTIVE VARIANCE

Research conducted over the past two decades has established that the manner in which problems are presented affects decision makers' preferences and choices, even when the presentations are normatively equivalent (e.g., Soman 2004; Tversky and Kahneman 1986). This phenomenon, called descriptive variance, is demonstrated in two major streams of research: investigations of framing effects and studies of information presentation effects (Payne, Bettman, and Johnson 1992). Effects of message framing – responding differently to distinct but objectively equivalent descriptions of the same message (e.g., 10% fat versus 90% fat-free) – and effects of message presentation – responding differently to equivalent information presented in different modes (e.g. verbally, numerically or graphically) – have both been found to affect preferences and choices. These effects are well documented in various domains, including medical judgments (Levin, Schnittjer, and Thee 1988), consumer judgments (Levin and Gaeth

1988; Sen 1998; Stone and Schkade 1991), health behaviors (Halpern, Blackman, and Salzman 1989; Linville, Fischer, and Fischhoff 1993), auditor judgments (O’Clock and Devine 1995), health promotion (e.g. Block and Keller 1995; Maheswaran and Meyers-Levy 1990; Meyerowitz and Chaiken 1987; Rothman et al. 1993), product promotion (Homer and Yoon 1992), social dilemmas (Brewer and Kramer 1986), Bayesian reasoning (Gigerenzer and Hoffrage 1995), preference reversals (Johnson, Payne, and Bettman 1988), and gambling (Erev and Cohen 1990).

There are a few articles that have examined descriptive variance effects in investment decision making. Examples of research on message framing effects in the investment domain include Hamilton and Biehal (2005), who examined the effects of varying the salience of promotion vs. prevention goals on risk preferences in investing, Johnson, Tellis, and MacInnis (2005), who found that describing a stock trade as a buy vs. sell affects investors’ preferences for winning/losing stocks, and Madrian and Shea (2001), who found that varying the default option for enrollment in a 401 (k) plan (opt-in vs. opt-out default) significantly affects employees’ participation in the plan. Research on message format effects in the investment domain is even more limited. One exception is Rubaltelli et al. (2005), who looked at how varying the format used to present investment returns (e.g., prices, price changes, percentages, ratios) affects the extent to which people exhibit a status quo bias in their investment decisions.

While descriptive variance effects have been well substantiated, relatively little attention has been paid to the relationship between descriptive variance effects and individual personality traits. Not surprisingly, researchers have advocated going beyond aggregate-level results to examine the effects of stable personality characteristics on peoples’ evaluations of framed messages (Levin et al. 2002). In the studies that follow, I examine how peoples’ tendency to elaborate on the potential positive and negative outcomes of their behaviors affects their

intentions to invest in financial opportunities that are framed differently (e.g., as gains versus losses) or presented in different information formats (e.g., graphically versus textually). I also investigate whether consideration of outcomes can temporarily be stimulated so as to overcome an individual's chronic tendency not to engage in such pre-decisional elaboration.

I look at three instances of descriptive variance. Study 1 examines information presentation effects, where the mode of financial information presentation is varied - graphic versus textual (information presentation study). Study 2 frames the goal of investment behaviors as approaching gains versus avoiding losses (goal framing study). Finally, Study 3 characterizes a key characteristic of the financial instrument – its past return – as a gain or loss (attribute framing study).

Responses to these different manipulations encourage adoption by the decision maker of a particular frame of reference towards the target, and a lack of focus on alternative frames of reference (e.g., see Levin, Schneider, and Gaeth. 1998). Thus, under Study 1's format manipulation, the focus is shifted by presenting the information in different formats. Similarly, under Study 2's goal framing manipulation, the focus is on the positive (or negative) consequences of acting (or not acting). Finally, under Study 3's attribute framing manipulation, the focus is on the positive (or negative) associations related to the positively (or negatively) framed attribute. I argue that across all three types of descriptive variance, elaborating on the positive and negative outcomes of engaging in the advocated behavior will make the alternative (i.e., less salient) frame of reference more accessible to the decision maker, thus attenuating (or even eliminating) the different descriptive variance effects.

In sum, I propose that elaboration on potential positive and negative outcomes in the pre-decision stage of decision-making will lead to a more balanced consideration of both the positive

and negative implications of a decision. This process helps people focus not only on the frame of reference made salient by the descriptive variance manipulation, but also on the alternative frame of reference, which serves to reduce their susceptibility to the effects of descriptive variance. Furthermore, I show that susceptibility to the effects of descriptive variance can be reduced for investors who tend not to engage in EPO by encouraging them to elaborate on the potential positive and negative outcomes of investing before making a decision.

3.2 PRE-DECISION ELABORATION ON POTENTIAL OUTCOMES

Descriptive variance effects of various types do not seem to be affected by effortful thinking, since decision-makers tend to adopt the frame of reference presented in the statement of the problem, and deeper thinking would not allow them to escape that frame (Levin et al. 2002). However, a particular type of processing that draws peoples' attention not only to the frame of reference emphasized in the statement, but also to alternative frames of reference, might reduce their susceptibility to descriptive variance effects.

Past research has argued that pre-decision deliberation creates a cognitive orientation – a “deliberative mindset” – that facilitates the task of determining which available option is most desirable while still being feasible (Gollwitzer 1990). Individuals in a deliberative mindset, who weigh the pros and cons of feasibility-related and desirability-related information and the positive and negative consequences of goal pursuit, are more receptive both to information that is externally available and to information that is stored in memory (Gollwitzer and Bayer 1999; Heckhausen and Gollwitzer 1987). Such a balanced consideration of positive and negative consequences can reduce shortcomings people ordinarily exhibit when analyzing the desirability

of a choice, such as employing simplified strategies or weighing positive and negative consequences differently and falling prey to framing effects.

When would a deliberative mind-set be more likely to reduce such shortcomings? Individual traits that make consumers more involved with deliberating options and wishes are likely to lead to increased information processing and a more potent deliberative mind-set. In this essay, I examine one such trait: the tendency to elaborate on potential outcomes (EPO). As discussed above, some people have a stronger tendency than others to elaborate on the potential implications of a decision and weigh its pros and cons (Yordanova, Inman, and Hulland 2006). This tendency makes individuals more likely to activate a deliberative mind-set in the predecisional phase. Since deliberative mindsets make people more receptive to information in general, and create a general open-mindedness toward processing information, engaging in a thorough pre-decision deliberation of both the pros and cons of an investment decision should reduce people's susceptibility to the effects of message framing and information presentation effects.

Yordanova and her colleagues (2006) have conceptualized EPO as an individual difference construct that encompasses three related dimensions: (1) a *generation/evaluation* dimension (the extent to which people generate a variety of potential consequences before they make a decision, and evaluate the importance and likelihood of these consequences); (2) a *positive focus* dimension (the extent to which people focus on positive consequences); and (3) a *negative focus* dimension (the extent to which people focus on negative consequences). They show that consumers' tendencies to elaborate on potential future outcomes prior to decision making is an important trait, which is related to various consumer decisions and behaviors.

Theoretically, both potential gains and potential losses should be weighted in investment decisions. However, some people tend to focus more on gains, while others focus more on losses. Yordanova and her colleagues demonstrate that some people are more inclined to focus on the positive consequences when thinking about potential outcomes of a decision or action, while others are more inclined to focus on the negative outcomes. They note, however, that people's positive/negative outcome focus tendencies are not two ends of a single continuum. Someone who focuses on the positive potential outcomes does not necessarily ignore the negative ones and vice versa, as some people engage in a balanced outcome consideration and focus on both positive and negative outcomes. In all three studies I examine the moderating effects of the generation/evaluation dimension of the EPO scale, arguing that investors who are more willing to engage in a thorough pre-decision elaboration on both the positive and negative outcomes of a decision should be less susceptible to all kinds of descriptive variance effects. Furthermore, in Studies 2 and 3, which employ valence-based descriptive variance manipulations, I also examine the moderating effects of the positive and negative outcome focus dimensions of the EPO scale, since investors who tend to focus primarily on positive (negative) outcomes should be more susceptible to the effects of valence-based types of descriptive variance that make gains (losses) more salient.

3.3 STUDY 1: INFORMATION PRESENTATION

The first example of descriptive variance I employ is the presentation of financial information in different modes: graphic or text format. According to rational principles of economic theory, different but equivalent information formats should not affect investment

strategies and decisions. However, differences in modes of information presentation represent an important example of descriptive variance that has been shown to affect decision making behavior in various domains (Payne, Bettman, and Johnson 1992). For example, verbal versus numeric representation of information has been found to affect information processing (Stone and Schkade 1991), probability judgments (Erev and Cohen 1990), and consumers' susceptibility to the attraction effect (Sen 1998). Similarly, varying graphical displays have been found to affect information processing and choice (Jarvenpaa 1989; MacGregor and Slovic 1986), while different numerical information formats (e.g., frequencies, percentages, probabilities) have been found to affect reasoning and behavior (Gigerenzer and Hoffrage 1995; Halpern, Blackman, and Salzman 1989).

Varying information formats is likely to have important effects on investor decision making as well. As discussed above, to date there has been very little research on information presentation effects in investment decision making contexts, with one exception being Rubaltelli et al. (2005), who found that different format of investment returns (e.g., prices, price changes, percentages, ratios) affects people's investment decisions.

I propose that providing investors with visual aids when describing mutual funds may make those who tend not to engage in pre-decision outcome elaboration more conscious of the importance of balancing risk with reward, leading to more diversified investment portfolios. The Morningstar-style box is such an aid. This widely adopted format describes mutual funds with a matrix-type graphic. The matrix visually classifies a mutual fund along two dimensions. For example, stock funds are classified according to whether the fund tends to invest in small, medium, or large cap stocks and whether the fund tends to invest in value, growth, or blended

stocks. By including a variety of investments that exhibit different Morningstar style box classifications, an investor can create a more diversified portfolio of investments.

I expect that presenting fund information from Morningstar boxes in a visual rather than a textual format will help low EPO investors to more easily and accurately discern risk/return differences among distinct types of funds. Specifically, the presence of such a graphical aid should make the different asset classes available in a choice set more salient to low EPO investors and thus enhance asset allocation efforts, leading to the creation more diversified portfolios. In contrast, high EPO investors are more likely to engage in thorough pre-decision elaboration on the various potential outcomes that might result from investing in each of the proposed mutual funds, regardless of the format used to present the fund information. Such consideration of the pros and cons of investing in each fund should make these investors better able to discern risk/return tradeoffs with or without the visually salient Morningstar style box. Therefore, I expect that high EPO investors will be conscious of the different asset classes independent of information presentation format, and their diversification tendencies should thus not be affected by the Morningstar box manipulation. Thus:

Hypothesis 1: Individuals' tendencies to generate and evaluate potential outcomes will affect their susceptibility to the effects of varying information presentation format. Specifically, such effects will be weaker for those with a higher (versus lower) chronic tendency to generate and evaluate potential outcomes.

3.3.1 Design and Procedure

A mail questionnaire was sent to a representative nationwide sample of 2000 households. Each questionnaire contained a single dollar bill to encourage participation. A cover letter

accompanying the questionnaire explained that the questionnaire was part of a larger academic study aimed at understanding how individuals make retirement investment decisions. The questionnaire asked respondents to consider a scenario in which they had just begun working for a company that offered them an opportunity to invest in a 401(k) retirement plan. They were given general information about 401(k) plans, and then told that they could contribute up to \$14,000 from their annual salary to the 401(k) plan for the current year. Respondents were then asked to indicate how much money, if any, they would invest in the 401 (k), and how they would invest this money across the available mutual funds, which were offered in three different asset classes: stocks, bonds, and money market funds. The funds were listed in alphabetical order.

After participants decided how much to invest and allocated the money to the available funds, they reported the perceived diversification of their portfolio via two questions asking investors whether they thought they had created a highly diversified portfolio and whether they had tried to include several different asset classes in their investment decisions. I also measured participants' self-reported knowledge about investing (two 5-point items; $\alpha = .81$; "Compared to most people, I know a lot about investing"; "Others often ask me for investing advice"), administered the generation/evaluation dimension of the EPO scale (six 5-point items; $\alpha = .94$; Yordanova, Inman and Hullah 2006), and a scale measuring risk aversion (three 5-point items; $\alpha = .76$; Donthu and Gilliland 1996). Finally, demographic information (gender, employment status, and primary household income earner status) was collected. Of the 147 respondents who returned the questionnaire, 92 chose to invest in the 401(k) plan presented in the scenario. Of the latter group, two cases had missing values and were dropped. Data from the remaining 90 respondents form the basis for my analysis.

The information presentation manipulation consisted of presenting equivalent information using either Morningstar-style boxes as visual aids when describing the mutual funds that people could choose from for their 401(k) plans or simply providing the equivalent information about the funds in the text (see Appendix A for stimuli). The dependent variable I focus on is portfolio diversification, operationalized as the number of different asset classes (i.e., stocks, bonds, and money market funds) investors included in their investment portfolios

3.3.2 Results

Test of hypothesis. To test my hypothesis a regression with the generation/evaluation dimension of EPO and information format condition (box graphic versus text) as independent variables, and knowledge about investing, risk aversion, gender, employment status, and primary household income earner status as controls was conducted to look at the number of asset classes included in investors' portfolios. Results from the regression ($F(8, 81) = 1.23, p < .3; R^2 = 11\%$) revealed a significant main effect for format condition ($b = -1.58, t = -2.29, p < .05$), and a significant interaction between the information format condition and subjects' tendency to generate and evaluate potential outcomes ($b = 0.39, t = 2.21, p < .05$). None of the covariates' regression coefficients were found to be significant.

Subsequent analysis of the group means revealed that investors who scored higher on the generation-evaluation dimension of the EPO scale (based on a median split) were not significantly affected in their diversification by the formatting manipulation ($M_{box\ format} = 2.0; M_{text\ format} = 2.2, t(78) = -.90, p > .1$; see Figure 2.1). On the other hand, investors who scored lower on the EPO scale were significantly influenced by the formatting manipulation. They

included more asset classes in their portfolio in the Morningstar-box information format condition than in the text condition ($M_{box\ format} = 2.5$; $M_{text\ format} = 1.9$, $t(78) = 2.2$, $p < .05$).

Thus, hypothesis 1 is supported.

Insert Figure 2.1 about here

It appears that the presence of the graphical Morningstar box makes gain-loss tradeoffs of the various funds more salient for low EPO investors, encouraging them to engage in a more extensive consideration of both the benefits and risks, and leading them to include more asset classes in their portfolios. On the other hand, high EPO investors engage in such a process habitually, such that the presence of the Morningstar box does not affect their risk-benefit considerations and consequently their diversification tendencies.

Additional analysis. Interestingly, there were no differences across conditions in investors' perceptions as to whether they had created a well-diversified portfolio. There were no main effects of either format or outcome elaboration tendency, and no interaction between the two factors (all p 's $> .1$). It seems that all investors perceived their portfolios to be about equally well-diversified, independent of the actual number of asset classes included, which suggests that investors may not be aware of the systematic impact of information presentation effects and individual difference variables on their diversification tendencies.

3.3.3 Discussion

Results from my first study provide evidence of the significant influence of peoples' outcome elaboration tendencies on their susceptibility to descriptive variance effects in their investment decision making. I found that when mutual fund descriptions included Morningstar-

style boxes rather than the same information presented in a written, textual format, low outcome elaboration investors significantly increased the number of asset classes they chose, creating more diversified portfolios. It is interesting that employing the box format encouraged only the low-outcome elaboration group to increase diversification, with no effect on the high-outcome elaboration group. It appears that this latter group is not affected by visual aids, as it is likely to engage in a risk/benefit assessment and discern different asset classes independent of information format, while the low-outcome elaboration group is affected by the visually salient boxes, which prompt them toward risk/benefit assessment and greater asset class diversification. The finding that low-outcome elaboration investors are more likely to benefit from visual aids such as Morningstar boxes has important implications for the communication and presentation of financial products.

Results from this study suggest that while susceptibility to information presentation effects proves to be counterproductive to peoples' well-being in many cases, it might also be used as a positive force to increase the effectiveness of persuasive messages. It seems that higher susceptibility to information presentation effects calls for the creation of effective educational programs and advertising campaigns aimed at increasing investments and improving decision quality, since relatively simple changes in information presentation – using visual aids when presenting mutual funds – can aid investment decision making and lead to a significant increase in portfolio diversification for a sub-group of investors who do not exhibit sufficient diversification when no aids are available to them.

So far, I have shown that people who elaborate on the potential outcomes of investing when deciding how to behave are more resistant to the effects of different information presentation formats. However, the question arises as to whether outcome elaboration tendencies

can attenuate other descriptive variance effects in the area of investment decision making. In the studies that follow, I extend my findings from Study 1 in several important ways. First, I conduct the next two studies in a controlled experimental setting where I take into consideration important covariates and include confounding and manipulation checks. Furthermore, I extend my findings beyond information presentation effects, and show that investors' outcome elaboration tendencies attenuate the extent to which their investment decisions are swayed by two other descriptive variance effects – one that varies the goal of investment behavior and another that emphasizes different aspects of a key financial product attribute. I also employ a different dependent variable – intention to invest – in order to show that outcome elaboration tendencies interact with descriptive variance effects to affect investors' intentions to invest in a financial instrument, beyond their tendencies to diversify their investment portfolios.

3.4 STUDY 2: BEHAVIORAL GOAL VARIATION

The second important example of descriptive variance that I examine deals with how the goal of investment behavior is framed. In my second study, I examine how manipulating the goal of investment behavior by emphasizing the potential benefits of investing versus the potential losses of not investing interacts with investors' elaboration on potential outcomes tendencies to affect the persuasiveness of investment offers.

Past research has found that emphasizing either the positive consequences of undertaking an act to achieve a particular goal or the negative consequences of not undertaking it influences subsequent judgment and choice. Effects of framing the goal of behavior in terms of obtaining gains versus avoiding losses have been shown in a wide variety of decision making domains,

including health promotion (e.g. Block and Keller 1995; Maheswaran and Meyers-Levy 1990; Meyerowitz and Chaiken 1987; Rothman et al. 1993), product promotion (Homer and Yoon 1992), and social dilemmas (Brewer and Kramer 1986). Researchers have also begun to investigate the effects of goal framing in the area of financial investing. For example, Hamilton and Biehal (2005) showed that emphasizing promotion-focused versus prevention-focused benefits in financial products interacts with consumers' self-views to affect investment choices. Furthermore, Zhou and Pham (2005) found that financial products emphasizing different goals (i.e., achieving gains versus avoiding losses) tend to create asymmetric sensitivities to potential gains or losses and thereby affect investors' propensities to seek risk.

Goal framing has not always produced consistent effects, and researchers have sought moderators that might explain these inconsistencies, including issue involvement (Maheswaran and Meyers-Levy 1990), opportunity and motivation to process (Shiv, Edell, and Payne 2004), and perceived-self efficacy (Block and Keller 1995). There have been calls for more research examining the relationship between goal framing and stable psychological traits (Rothman and Salovey 1997). In this study, I examine how investors' outcomes elaboration tendencies interact with the effects of goal framing to affect their intention to invest in an advertised mutual fund. I expect to find significant goal framing effects for low EPO investors, but not for high EPO investors. I expect that high EPO investors are more likely to engage in a thorough pre-decision elaboration of the potential implications – both positive and negative – of the advertised investment behavior. This will draw their attention to the different goals that the advocated behavior might fulfill (i.e., achieving gains, avoiding losses), making both goals salient. Because these high EPO consumers focus on both the goal emphasized by the message and the alternative goal, their evaluation of the investment offer will not reflect goal framing effects. Thus:

Hypothesis 2: Individuals' tendencies to elaborate on potential outcomes will affect their susceptibility to the effects of goal framing. Specifically, goal framing effects will be weaker for those with a higher (versus lower) chronic tendency to generate and evaluate potential outcomes.

The valence-based manipulation used in this study shifts the focus of the behavior goal from approaching financial gains to avoiding financial losses. This allows me to investigate not only the impact of generation and evaluation of potential outcomes, but also the effects of the other two EPO dimensions – positive and negative outcome focus. Since there is evidence that consumers' positive/negative outcome focus tendencies are related to their chronic promotion/prevention strategic orientations (Yordanova, Inman, and Hulland 2006), I expect that strong tendencies to focus on positive versus negative outcomes will alter consumers' responses to financial promotional offers that are framed in terms of either approaching gains or avoiding losses. Past research has found that individuals are more willing to adopt a framed message when the valence of the frame matches their strategic orientations and pre-dispositions (e.g., Lee and Aaker 2004; Monga and Zhu 2005; Scheier and Carver 1985). Although there has not been a direct empirical test, there is some indirect evidence that individuals' chronic predispositions to view the future in a positive or negative light might affect whether they perceive a situation in terms of associated gains or losses (e.g., see Rothman and Salovey 1997).

I expect that people who chronically focus on positive potential outcomes when they elaborate on the implications of their decisions and actions and who place more weight on positive outcomes will be more willing to adopt a message that emphasizes the gains from engaging in a behavior. Conversely, people who chronically focus on negative outcomes and

place more weight on these will be more willing to adopt a message that emphasizes the losses from not engaging in a behavior.

Hypothesis 3(a): Individuals with a stronger tendency to focus on negative outcomes will be more persuaded by messages that emphasize loss avoidance than those with weaker tendency to focus on negative outcomes.

Hypothesis 3(b): Individuals with a stronger tendency to focus on positive outcomes will be more persuaded by messages that emphasize gain achievement than those with weaker tendency to focus on positive outcomes.

3.4.1 Design and Procedure

One hundred and fifteen undergraduate students were randomly assigned to either a gain (i.e., positive framing) or a loss (i.e., negative framing) condition. Respondents received extra course credit for their participation in the study. Each respondent was given a booklet that described a decision scenario asking them to imagine that they had \$5000 available and to evaluate an investment opportunity. The investment opportunity was a mutual fund offered by the fictional *Financial Investment Corporation*, whose description was varied across the two conditions by emphasizing either the gains that investing in the fund might provide (positive framing condition) or the gains that one might fail to realize by not investing in the fund (negative framing condition). The advertised mutual fund had an average return of 9.3% over the past ten years (please see Appendix B for stimuli). All respondents were told that they can invest all or some of their money in the advertised fund, and that gains and losses were to be realized in one year. The dependent measure in this study is the subject's likelihood of investing in the advertised mutual fund (1 = "not likely at all," 9 = "very likely").

3.4.2 Measures

After measuring participants' intention to invest in the advertised mutual fund, I measured a set of potential confounds and covariates. First, perceived risk was measured by asking participants to indicate how risky they perceived the mutual fund investment to be (1 = "not risky at all", 9 = "very risky"; see Weber and Hsee 1998). Next, I measured their extent of cognitive elaboration (three 9-point items; $\alpha = .90$; Shiv, Edell, and Payne 2004), issue involvement (three items; $\alpha = .85$; Maheswaran and Meyers-Levy 1990) and self-efficacy beliefs (i.e., beliefs that investing in the advertised mutual fund will enable one to realize financial gains; see Block and Keller 1995).

Demographic information was also collected, along with measures of degree of knowledge about investments. A manipulation check question was included that asked participants whether the message stressed the positive implications of investing in the mutual fund, and whether it stressed the negative implications of not investing in the fund (Block and Keller 1995; Maheswaran and Meyers-Levy 1990).

The elaboration on potential outcomes scale (Yordanova, Inman, and Hulland 2006) was then administered as a part of a seemingly unrelated study, involving completion of a different questionnaire. Since in this study I examine how all three EPO dimensions affect investors' evaluation of a framed investment offer, I measured the generation/evaluation dimension of the EPO scale as in Study 1 (six 7-point items; $\alpha_{\text{generation/evaluation}} = .88$), but also assessed the positive outcome focus (three 7-point items; $\alpha_{\text{positive}} = .85$) and negative outcome focus (four 7-point items; $\alpha_{\text{negative}} = .88$) EPO dimensions.

3.4.3 Results

Manipulation check. As expected, subjects perceived the fund description to emphasize the positive consequences of investing to a higher extent in the positive condition ($M = 6.8$) than in the negative one ($M = 5.4$; $t(113) = 3.17, p < .01$). Furthermore, they also believed that the message emphasized the negative consequences of not investing to a higher extent in the negative condition ($M = 6.4$) than in the positive one ($M = 3.7$; $t(113) = 6.67, p < .01$). Thus, the manipulation of goal frame was successful.

Potential confounds. Respondents indicated how credible, easy to comprehend, and informative the two investment offers were. Separate ANOVAs conducted on these three variables revealed no significant treatment effects ($p's > .1$), suggesting that the treatments were not confounded with these variables. Second, I assessed whether feelings of threat or fear were differentially induced as a function of the treatments by asking participants to rate the extent to which the message in the offer made them feel fearful, nervous, scared, nauseated, and uncomfortable ($\alpha = .88$; Block and Keller 1995). No significant differences were noted ($p's > .1$), arguing against this possibility. Finally, I established that the mutual fund was perceived as equally risky across the two framing conditions ($p > .1$). Thus, the manipulation and confounding checks suggest that the intended factors were manipulated successfully.

Test of hypotheses. To test hypothesis 2, I ran a regression on intention to invest in the advertised fund, using goal framing and the generation/evaluation dimension of EPO as independent variables and issue involvement, depth of processing, perceived self-efficacy, knowledge about investing, gender, and the potential confounds described in the previous section as controls ($F(16, 98) = 5.53, p < .01; R^2 = 47\%$). The results show significant main effects of EPO ($b = 1.16, t = 2.67, p < .01$), goal framing ($b = 11.10, t = 2.47, p < .05$), involvement ($b =$

1.88, $t = 3.25$, $p < .01$), and self-efficacy beliefs ($b = .32$, $t = 2.69$, $p < .01$). None of the other controls' regression coefficients were found to be significant. Results also reveal a significant two-way interaction between framing and peoples' EPO scores on the generation/evaluation dimension ($b = -1.76$, $t = -2.17$, $p < .05$), supporting hypothesis 2.

Additional analysis of the group means revealed that, as predicted, intentions to invest for individuals who generate and evaluate a greater number of potential outcomes (based on a median split) were not affected by the framing manipulation ($M_{positive\ frame} = 4.5$; $M_{negative\ frame} = 4.8$, $t(98) = -0.56$, $p > .1$; see Figure 2.2), whereas those with a lower tendency to generate and evaluate outcomes were significantly more persuaded to invest in the positive framing condition than in the negative ($M_{positive\ frame} = 5.4$; $M_{negative\ frame} = 4.0$, $t(98) = 3.45$, $p < .01$; see Figure 2.2). Thus, while my findings reveal that people high in outcome elaboration tendency are not affected by goal framing, for those low in elaboration I find framing effects consistent with past literature (Meyers-Levy and Maheswaran 2004), in support of hypothesis 2.

I next tested hypothesis 3(a) by running a regression on intention to invest in the advertised fund, using goal framing and the negative focus dimension of EPO as independent variables, and including the same controls as before ($F(13, 101) = 6.64$, $p < .01$; $R^2 = 46\%$). Results revealed significant main effects for negative outcome focus ($b = 0.49$, $t = 2.76$, $p < .01$) and framing condition ($b = 4.04$, $t = 3.81$, $p < .01$). Of the control variables included, only involvement ($b = 0.41$, $t = 3.27$, $p < .01$) and self-efficacy ($b = 0.38$, $t = 3.28$, $p < .01$) had significant influences on intention to invest in the advertised mutual fund. Also, as predicted, a significant two-way interaction between the tendency to focus on negative outcomes and goal framing was uncovered ($b = -0.72$, $t = -3.08$, $p < .01$). Results from the next regression model, which tested hypothesis 3(b) and included goal framing and the positive focus dimension of

EPO, as well as the same control variables ($F(13, 101) = 6.98, p < .01; R^2 = 47\%$), revealed a significant two-way interaction between tendency to focus on positive outcomes and goal framing ($b = 0.57, t = 2.41, p < .05$). Only one of the controls – involvement – had significant effect on participants' intention to invest ($b = 0.46, t = 3.67, p < .01$).

Analysis of the group means revealed that, consistent with my predictions, people with a stronger tendency to focus on negative outcomes (based on a median split) are significantly more willing to adopt the loss-framed message ($M_{negative\ frame} = 5.2$) than those with a weaker tendency to focus on negative outcomes ($M_{negative\ frame} = 3.8, t(101) = 2.43, p < .01$; see Figure 2.3). In contrast, individuals with a stronger tendency to focus on positive outcomes are more willing to adopt the gain-framed message ($M_{positive\ frame} = 5.5$) than those with a weaker tendency to focus on positive outcomes ($M_{positive\ frame} = 4.3, t(101) = 2.24, p < .05$; see Figure 2.3). This pattern of results supports hypothesis 3.

Insert Figures 2.2 and 2.3 about here

3.4.4 Discussion

Findings from this study add to past research examining consumers' evaluation of financial offers framed in terms of approaching gains or avoiding losses (Hamilton and Biehal 2005) by identifying an important factor that moderates the relative persuasiveness of such offers – investors' tendency to elaborate on the potential outcomes of investing before making a decision. Results support my contention that stronger outcome elaboration tendencies attenuate the effects of goal framing. Furthermore, I find that a propensity to focus primarily on positive (negative) outcomes when engaging in outcome elaboration actually makes people more

susceptible to the effects of a manipulation that frames the goal of behavior as approaching gains (avoiding losses). It seems that a balanced pre-decision outcome elaboration, where one focuses on both the positive and negative potential outcomes, reduces the effects of goal framing, while a biased elaboration, where one tends to focus on only the positive or negative potential outcomes, exacerbates these effects.

In the next study, I extend the results from my previous two studies by employing a different descriptive variance manipulation (i.e., attribute framing), and show that the effects of elaboration on potential outcomes on investors' susceptibility to the effects of descriptive variance are independent of the type of manipulation employed. Furthermore, I experimentally test whether encouraging pre-decision outcome elaboration can reduce investors' susceptibility to the effects of descriptive variance. I show that this encouragement aids investors who are normally not inclined to engage in such elaboration and reduces the extent to which their investment decisions are swayed by descriptive variance.

3.5 STUDY 3: PRODUCT ATTRIBUTE VARIATION

In my third study I employ a descriptive variance manipulation by labeling a key attribute of the fund – its past average return – in positive vs. negative terms. My theoretical contention throughout this essay is that individuals with stronger outcome elaboration tendencies are less susceptible to the effects of descriptive variance. Beyond seeking to replicate this finding, I also attempt to manipulate an individual's tendency to engage in EPO and see whether direct intervention might offset some of the negative effects of chronically-low EPO tendencies, with

the potential to enhance decision quality in the domain of financial investing. To accomplish this objective, in Study 3 I add conditions where investors are actively encouraged to elaborate on the potential positive and negative outcomes of investing before making their investment decisions. I predict that this manipulation will reduce descriptive variance effects for participants exhibiting chronically low EPO, thus providing direct evidence of the effects of outcome elaboration on the evaluation of framed messages.

The descriptive variance manipulation I employ in Study 3 – attribute framing – refers to the valence-consistent shift in evaluations that leads positively-framed attributes to result in more favorable evaluations than negatively-framed attributes. This valence-consistent shift associated with frames appears to be a reliable and robust effect (Levin et al. 2002). The underlying explanation for attribute framing effects is that an associative network in memory causes exposure to positive (negative) attribute information to make other, related positive (negative) attributes more accessible, leading to greater positive (negative) evaluations (e.g., see Levin, Schneider, and Gaeth 1998). Attribute framing promotes selective attention to the positive (negative) attributes of the object, leading in turn to greater accessibility of positive (negative) associations in memory. Attribute framing effects have been shown across various domains, including medical judgments (Levin, Schnittjer, and Thee 1988), consumer judgments (Levin and Gaeth 1988), health behavior (Linville, Fischer, and Fischhoff 1993), and audit judgments (O’Clock and Devine 1995).

In this study, I emphasize the positive or negative return of a variable financial instrument. I expect that emphasizing positive return information will tend to activate positive concepts associated with a high return such as financial gains, whereas emphasizing negative return information will activate negative concepts such as financial losses, especially among low

EPO investors. Based on past literature which has found that framing a key product attribute in a positive (negative) way will lead to a more positive (negative) evaluation of the product (e.g., Levin, Schneider, and Gaeth 1998), I expect that low EPO individuals' willingness to invest in the fund will generally be higher in the positive framing condition than in the negative one.

Thorough pre-decision outcome elaboration on a variety of potential outcomes of investing, however, will help participants to focus on both the positive and negative aspects of the key product attribute, helping them to evaluate the product in a more balanced way, and reducing their susceptibility to attribute framing effects.³ Therefore, the investment intentions of high EPO investors should not be swayed by emphasizing the positive (negative) aspects of a mutual fund's return. Thus:

Hypothesis 4: Individuals' tendencies to elaborate on potential outcomes will affect their susceptibility to the effects of attribute framing. Specifically, attribute framing effects will be weaker for those with a higher (versus lower) chronic tendency to generate and evaluate potential outcomes.

Earlier, I argued that the process of pre-decision elaboration on potential outcomes draws peoples' attention to different frames of reference, thus helping them overcome specific, externally-imposed descriptive variance manipulations. In the first two studies, I experimentally showed that outcome elaboration is correlated with a reduction in individuals' susceptibility to descriptive variance effects. However, I have not yet directly demonstrated that greater outcome elaboration precedes this reduced susceptibility. For this purpose, I add an additional condition to

³ Like Study 2, Study 3 also employs a valence-based descriptive variance manipulation. In this case, the manipulation emphasizes the positive or negative aspects of a product attribute. Initially, I examined whether the positive and negative outcome focus dimensions of the EPO scale would also moderate peoples' susceptibility to its effects. However, preliminary analyses revealed that participants' tendencies to focus primarily on positive or negative outcomes do not affect their susceptibility to the effects of attribute framing. Therefore, I do not discuss these results further in the essay.

Study 3 that encourages participants to elaborate on the potential outcomes of investing before they make a decision. In this condition, I prime deliberative mindsets in participants by encouraging them to consider both the positive and negative, short-term and long-term outcomes of investing in an advertised mutual fund. I expect that this manipulation will encourage low EPO participants to temporarily engage in greater outcome elaboration. This should have the effect of decoupling their product evaluations from the differential framing of the fund return information. However, this deliberative mindset priming is not expected to make a difference to the responses of high EPO participants, since they tend to engage in such elaboration without encouragement.

Hypothesis 5: When encouraged to elaborate on the positive and negative outcomes of investing before making a decision, low EPO individuals will become less susceptible to attribute framing effects.

3.5.1 Design and Procedure

One hundred eighty three undergraduate students participated in the study in exchange for course credit. They were told that they had \$5000 available, and had to decide how to invest the money for the coming year. Participants were randomly assigned to one of four experimental conditions in a 2 (outcome elaboration: encouraged vs. not encouraged) x 2 (attribute framing: positive vs. negative) between-subjects design. In all conditions, participants were given a booklet that contained an investment offer describing a mutual fund that had a variable return and was offered by the fictional *Financial Investment Corporation*.⁴ The offer was framed differently in the two framing conditions: the positive condition emphasized that the average

⁴ Subjects in this study did not participate in Study 2.

return for the best five of the past ten years was 12%, whereas the negative condition stated that the average return for the worst five of the past ten years was negative 2% (please refer to Appendix C for stimuli). In both conditions, it was also stated that the average return over the past ten years was 5.03%. In all conditions, participants were told that any money not invested in the proposed fund would be instead in a mutual fund with a fixed annual return of 2%.

Following exposure to the investment offer, the outcome elaboration groups were asked to first elaborate on the potential outcomes of investing or not investing in the mutual fund before making a final investment decision. In contrast, the other groups proceeded directly to the questions that followed. Subjects then responded to a series of questions relating to the dependent measures, the manipulation check variables, and measures of potential confounds and covariates. (The same sets of measures used in Study 2 were also used in Study 3.)

3.5.2 Measures

In this study, a questionnaire containing the three dimensions of the EPO scale - generation/evaluation dimension (six 7-point items; $\alpha = .90$), positive outcome focus dimension (three 7-point items; $\alpha = .85$), and negative outcome focus dimension (four 7-point items; $\alpha = .91$) and a scale measuring risk aversion (three 7-point items; $\alpha = .70$; Donthu and Gilliland 1996) was administered to participants in the different conditions at different times. In the outcome elaboration priming condition, I measured chronic EPO tendencies first in order to make sure that participants' responses to the scale are not affected by the outcome elaboration manipulation, while in the no outcome elaboration priming condition, I measured these tendencies last, as it was done in the previous two studies.

The booklet containing the investment offer was presented separately as a part of a seemingly unrelated study. After participants in the outcome elaboration condition were shown the mutual fund advertisement, but before they were asked to indicate their intention to invest, they were encouraged to elaborate on the potential outcomes of investing in the fund. In order to encourage participants' elaboration on potential outcomes, I employed the deliberative mindset priming approach developed by Gollwitzer and his colleagues (e.g., Gollwitzer and Kinney 1989). I first asked participants to list the positive and negative, short-term and long-term consequences of investing in the fund. After listing these consequences, participants were then asked to assess (using a seven-point scale) each outcome's potential importance and the likelihood that it would actually occur.

My dependent measure used a nine-point scale to assess a subject's intention to invest in the presented mutual fund (1 = "not likely," 9 = "very likely").⁵ At the end of the questionnaire, as in Study 2, a manipulation check was included asking participants whether the message stressed the positive implications of investing in the mutual fund, and whether it stressed the negative implications of not investing in the fund.

3.5.3 Results

Manipulation check. The manipulation check yielded a significant main effect for framing – subjects perceived that the framed investment offer emphasizes the positive consequences of investing to a higher extent in the positive framing condition ($M = 7.3$) than in

⁵ The same manipulation and confound checks included in Study 2 were also measured for Study 3, and were analyzed for potential impact on the dependent measure. Because none of these potential effects were found to be significant, they are not described further here. However, details are available from the first author.

the negative one ($M = 4.1$, $t(181) = 11.16$, $p < .01$), and that the offer emphasizes the negative consequences of investing to a higher extent in the negative framing condition ($M = 6.1$) than in the positive one ($M = 3.6$, $t(181) = 7.93$, $p < .01$).

Test of hypotheses. To test hypotheses 4 and 5, I ran a regression with EPO's generation/evaluation dimension, framing condition, and deliberative mindset manipulation as independent variables, and issue involvement, depth of processing, knowledge about investing, perceived risk, risk aversion, gender, and the potential confounds described in Study 2 as controls ($F(17, 165) = 4.10$, $p < .01$; $R^2 = 30\%$). The analysis revealed significant main effects of attribute framing ($b = -7.55$, $t = -4.14$, $p < .01$) and EPO's generation/evaluation dimension ($b = 0.90$, $t = 2.63$, $p < .01$), significant two-way interactions between EPO and framing condition ($b = -1.22$, $t = -3.19$, $p < .01$) and between framing and manipulation conditions ($b = -7.11$, $t = -2.50$, $p < .05$), and a significant three-way interaction between framing condition, subjects' tendency to generate and evaluate potential outcomes, and the deliberative mindset manipulation ($b = 1.15$, $t = 1.98$, $p < .05$). Only one control variable – risk aversion – had a significant effect on participants' intention to invest ($b = -0.44$, $t = -2.99$, $p < .01$).

The obtained significant three-way interaction provided strong support for hypotheses 4 and 5. Subsequent analysis of the group means revealed that in the condition where participants were not encouraged to elaborate on potential outcomes, high chronic EPO investors (based on a median split) exhibited no significant difference in their intention to invest in the advertised fund across the positive versus negative framing conditions ($M_{positive\ frame} = 6.2$; $M_{negative\ frame} = 6.1$, $t(165) = 0.29$, $p > .1$; see Figure 2.4). However, for low chronic EPO investors there was a significant effect of framing on intention to invest, with investors significantly more willing to invest in the positively-framed condition ($M_{positive\ frame} = 7.5$) than in the negatively-framed

condition ($M_{negative\ frame} = 4.7$), ($t(165) = -4.00, p < .01$). These results are consistent with my findings from Studies 1 and 2 regarding the moderating impact of innate or chronic tendencies to engage in EPO on susceptibility to descriptive variance effects.

Insert Figure 2.4 about here

I next examined the effects of directly encouraging a deliberative mindset by inducing EPO processing tendencies. Among individuals who exhibit a chronic tendency to generate and evaluate potential outcomes, attribute framing did not have a significant effect on intention to invest ($M_{positive\ frame} = 6.3$; $M_{negative\ frame} = 5.8$; $t(165) = 0.33, p > .1$), as would be expected. Moreover, in contrast to the first two studies, no framing effects were found among individuals who exhibit a chronic tendency not to generate and evaluate potential outcomes, but who were encouraged to do so in this study ($M_{positive\ frame} = 6.1$; $M_{negative\ frame} = 6.0$; $t(165) = 1.95, p > .1$). As expected, priming a deliberative mindset among low EPO individuals – by encouraging participants to consider the potential positive and negative outcomes of investing in the proposed mutual fund – promoted a more balanced fund evaluation by consumers not normally inclined to engage in this type of elaboration, and thereby reduced their susceptibility to descriptive variance effects. Thus, direct intervention enabled chronically low EPO individuals to behave in a manner consistent with high EPO individuals.

3.5.4 Discussion

Results from this third study support my contention that a stronger outcome elaboration tendency attenuates the effects of descriptive variance, independent of the type of manipulation involved. My results provide strong support for the hypothesis that a stable individual trait – the

tendency to consider potential future outcomes before making a decision – attenuates the extent to which investors’ decisions are swayed by the effects of different types of descriptive variance. Moreover, this study shows that independent of an individual’s chronic tendency to elaborate on potential outcomes, investors’ susceptibility to descriptive variance effects can be attenuated temporarily with a mental processing intervention that induces them to consider the potential outcomes of investing before making a decision. Results from this study, which revealed that encouraging pre-decision outcome elaboration by priming deliberative mindsets aids people who are not likely to otherwise engage in this process, makes them less susceptible to the effects of framing, confirms my prediction that outcome elaboration indeed reduces the effects of descriptive variance.

3.6 GENERAL DISCUSSION

Past research has not empirically examined whether pre-decision deliberation on the pros and cons of engaging in a behavior might attenuate shortcomings individuals ordinarily exhibit when analyzing the desirability of a choice (Gollwitzer 1990). In this essay I provide evidence that the tendency to engage in a balanced consideration of positive and negative consequences might eliminate these shortcomings. More specifically, I show that such pre-decision deliberation, which promotes a balanced focus on alternative frames of reference, reduces descriptive variance effects in the domain of investment decision making.

Findings in this essay have important implications for understanding an important investment decision-making bias that results from presenting information equivalent in content

but different in format. Robust descriptive variance effects have been found to impact people's attitudes, judgments, and choices in various domains in prior research. I show that such effects exist in the domain of investment decision making as well, and persist when different types of descriptive variance manipulations are employed. Furthermore, I propose a potential solution to this bias as I find that elaborating on the risks and benefits of investing before making an investment decision mitigates the effects of three different examples of descriptive variance.

Results from my studies reveal that investors who elaborate on the potential outcomes of their investment decisions, when compared to investors who are less likely to do so, are less influenced by irrelevant cues such as the framing or the presentation mode of the information provided to them, which could lead to better investing habits. Furthermore, I show that encouraging pre-decision elaboration on the pros and cons of investing helps investors with weaker outcome elaboration tendencies to become less influenced by peripheral cues such as framing and presentation mode.

Past research has found that high EPO people are more likely to engage in effective self-regulation and tend to invest more money for their retirement (Yordanova, Inman, and Hulland 2006). Based on this, high outcome elaboration investors, who are more efficient in their self-regulation efforts, are likely to have better investing and portfolio diversification habits. It is therefore important for investor education programs and campaigns to target and reach low outcome elaboration investors and improve their investment practices. In this essay, I found that this group of investors is particularly vulnerable to the effects of framing and presenting equivalent information in different ways, which would make them more responsive to framed persuasive messages. While susceptibility to descriptive variance proves to be counterproductive to people's well-being in many cases, it might also be used to increase the effectiveness of

persuasive messages. Higher susceptibility to varying messages descriptions might aid the effectiveness of educational programs and advertising campaigns aimed at increasing investments and improving their quality.

Of course, although susceptibility to framing effects could be used as a positive force to improve investment decisions, in most cases it is a bias that actually gets in the way of sound investment practice. The good news is that the group that is particularly vulnerable to this bias can actually be aided by encouraging pre-decision outcome elaboration. I found that encouraging investors to consider the risks and benefits of investing before making an investment decision reduces susceptibility to framing effects for all investors independent of their outcome elaboration tendencies. These findings have important implications for developing debiasing strategies in the domain of investment decision making and have the potential to advance our knowledge of the investment decision making process and advance practice, policy and thought regarding how to enhance decision quality of consumer investing decisions.

Furthermore, by examining the relationship between different types of descriptive variance and people's tendencies to consider the potential future outcomes of their behavior, I contribute to our understanding of the relationship between message frames and individuals' dominant psychological traits and concerns. Consumers' tendencies to elaborate on potential future outcomes are important determinants of their information processing, and findings from the three studies I present in this essay provide compelling evidence of their effect on people's evaluation of messages with varying description.

3.6.1 Limitations and Future Research

In addition to its important contributions and implications, this research has some limitations to be addressed in future research. I find that positive and negative outcome focus tendencies were significant moderators of people's susceptibility to goal framing effects, but they did not influence susceptibility to attribute framing effects. Interestingly, goal framing varies the valence of the overall goal of the advocated behavior (approaching gains vs. avoiding losses), while attribute framing varies only one specific aspect of the advertised product. Future research should examine what types of valence-based manipulations are related to consumers' positive and negative outcome focus. It may be the case that chronic outcome focus tendencies interact only with globally-focused descriptive variance manipulations, which vary the overall valence of a message, and not with specifically-focused descriptive variance manipulations, which vary the valence of a specific product description.

I also argued that a balanced pre-decision elaboration on the potential outcomes of investing reduces the effects of framing by making alternative frames of reference accessible. One limitation of this research is that I did not directly measure participants' accessibility of alternative frames of reference when evaluating the framed mutual funds. Future studies might include such measures and examine participants' relative accessibility of the frame of reference made salient by the information framing or presentation manipulation, as well as of the alternative frame that is not emphasized by the manipulation. Such studies would provide a more direct evidence for the mechanism through which EPO alleviates framing effects. Future research should also examine this relationship in other consumer contexts and domains that relate to the appropriate use of income to finance consumption or savings (e.g., Soman and Cheema 2002).

3.6.2 Conclusion

The need for innovative behavioral finance research that might give investors the tools they need to better understand the markets and the basic principles of financial planning is constantly emphasized by organizations such as the NASD Investor Education Foundation. By examining important investment biases and proposing a potential solution this essay contributes to the behavioral finance literature which is trying to show how the substantial body of knowledge demonstrating biases and shortcomings in human decision-making could be applied to improving the efficiency of individual investors and financial institutions. Findings from the three studies presented provide strong evidence that investment biases could be alleviated by using techniques such as encouraging consumers to consider the pros and cons of the available options in a balanced way. These findings have important implications for the design, presentation, and communication of financial products and for the growing practice of developing investor education programs and campaigns targeted at improving investment practices.

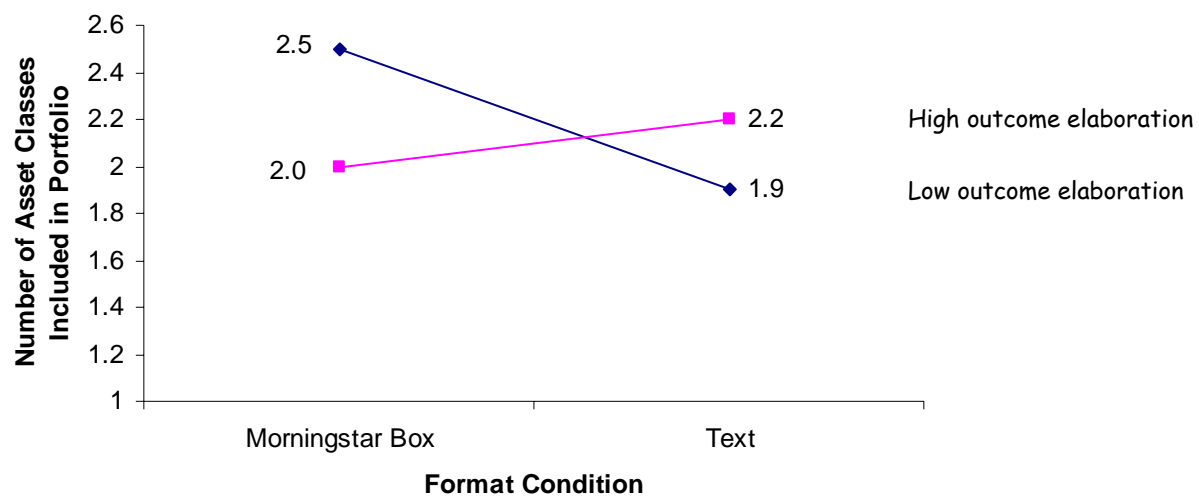
Figure 2.1. Study 1: Interaction Between Information Presentation Format and EPO

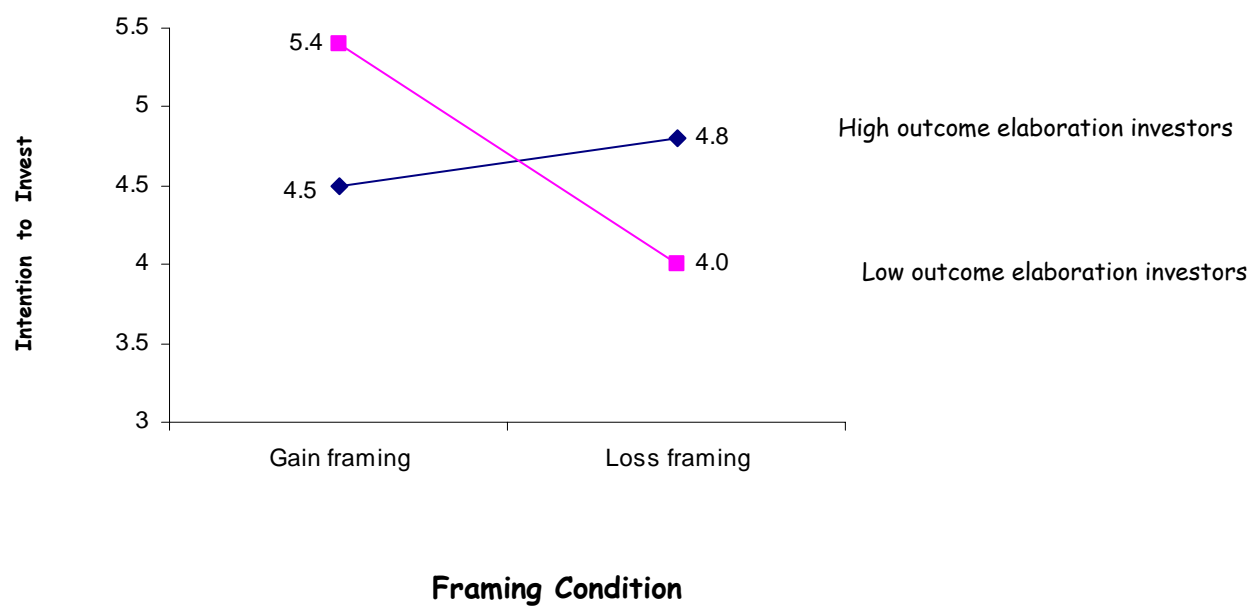
Figure 2.2.Study 2: Interaction Between Goal Framing and EPO

Figure 2.3. Study 2: Interaction Between Goal Framing and Tendencies to Focus on the Negative/Positive Outcomes

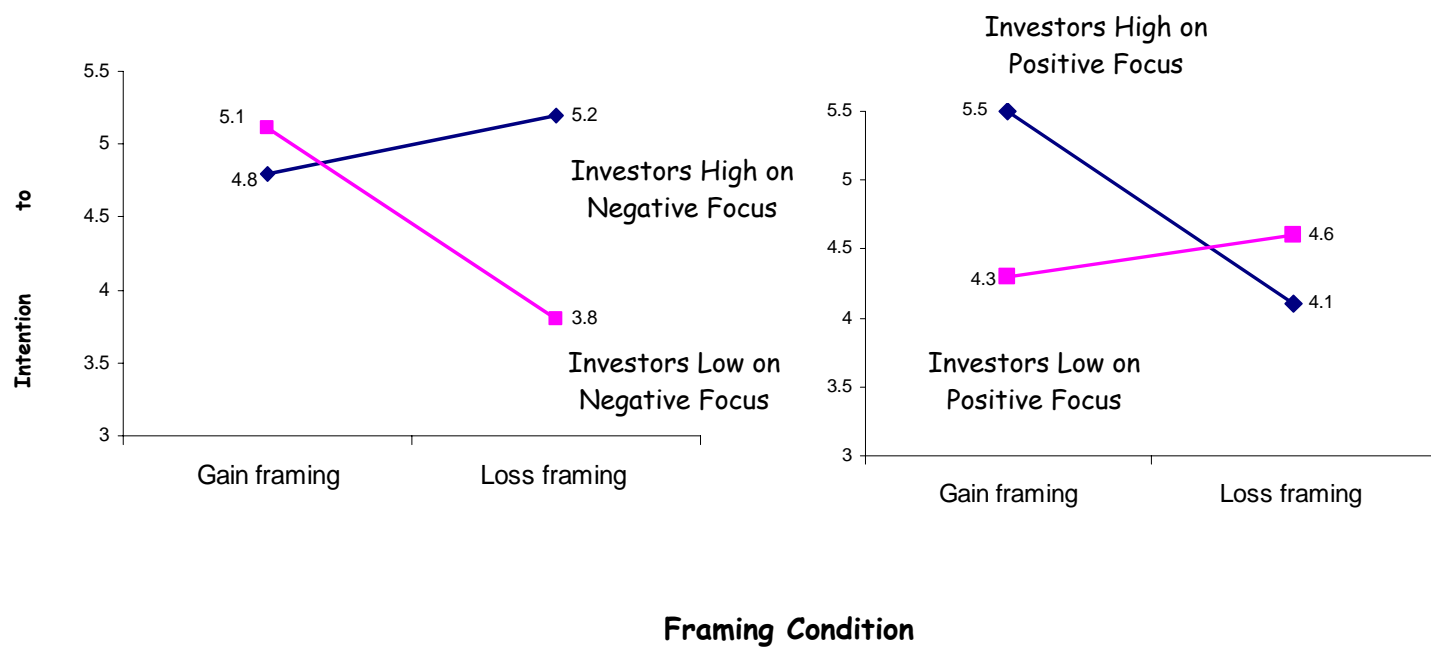
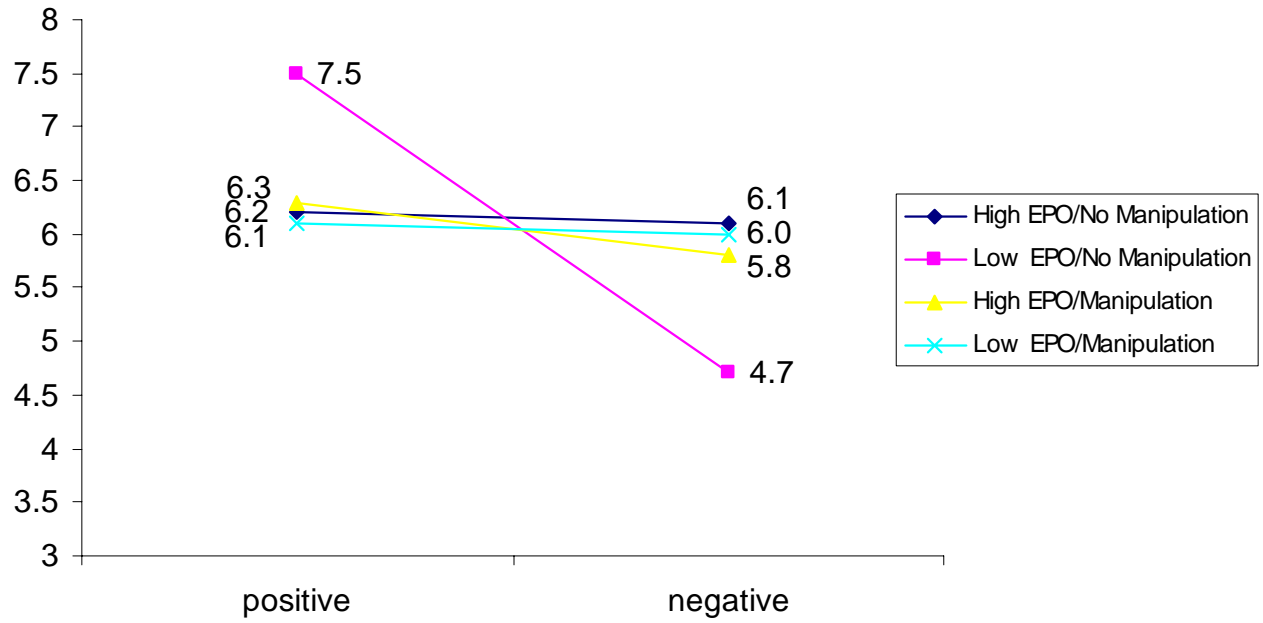


Figure 2.4. Study 3: Three-way Interaction Between Attribute Framing, EPO, and Deliberative Mindset Manipulation



4.0 SECTION IV

ESSAY 3: THE INTERPLAY OF MINDSETS AND GOAL HIERARCHY IN CONSUMER GOAL PURSUIT AND CHOICE

Most products in the marketplace emphasize an important goal that consumers might achieve by consuming them – e.g., nutrition, weight loss, taste. Some products, however, call attention to the reasons why one should achieve the promoted goal, while others call attention to the means how one might achieve the goal. Past research, which is examined in more detail below, has looked at the hierarchical structure of goals, and argued that goals exist at different levels of abstraction, with high-level goals emphasizing why one should achieve the goal, and low-level goals emphasizing how one could achieve it (e.g. Carver and Scheier 1998; Huffman, Ratneshwar, and Mick 2000; Bagozzi and Dholakia 1999).

Examples of products positioned in terms of high- versus low-level goals are abundant in the marketplace. For instance, *Tropicana*®'s orange juices all promote a goal of being healthy, but differentiate the level of goal abstraction by calling one variety *Healthy Heart* pointing to a reason why one should stay healthy, while calling another variety *Low Acid* stressing a means of staying healthy. Another example are Kellogg's *Smart Start*® cereals, which are all positioned as nutritional, but some are called *Healthy Heart*, emphasizing the reason for nutrition, while others are called *Antioxidants*, emphasizing the means of achieving nutrition. Furthermore, many public health campaigns aim to promote a particular goal or behavior among consumers, e.g., to stop smoking, be healthy, use seatbelts, etc., but while some campaign materials tend to emphasize

the reasons why one should pursue the promoted goal or behavior, others emphasize the means how they can do that. For example, a *Eat well, Live well* campaign by the Dietitians of Canada Association promotes healthy eating using different posters – one promoting the types of foods that are part of a healthy diet: “Healthy eating: Just one food does not make it or break it,” and another promoting the reasons for keeping a healthy diet: “Healthy Weight: Live well, eat well, feel great!”

An important question arises: which products will consumers be more likely to choose, and which campaigns will be more effective in promoting the advocated goal? In this essay I examine how activating goals at different levels of abstraction will influence consumers’ pursuit of these goals as indicated by their goal commitment, their intended effortful pursuit of the goal, and their choices.

Recently, researchers have started to examine how construals at different levels of abstraction affect self-control (Fujita et al. 2006). These authors found that activation of high-level construals (which capture global, superordinate features of an event), as compared to activation of low-level construals (that capture local, subordinate features of an event), leads to decreased preferences for immediate over delayed outcomes, greater physical endurance, stronger intention to exert self-control, and less positive evaluations of temptations. I extend the limited research in this area, and look at the relative effectiveness of high- vs. low-level goal framing for promoting subsequent effortful goal pursuit. I show that high-level goal activation, which stresses the why of behavior, and low-level goal activation, which stresses the how of behavior, are differentially effective for promoting subsequent commitment to and pursuit of the activated goal, and that this relative effectiveness depends on consumers’ decisional status – e.g.,

whether consumers are still deliberating on a decision, or have already made a decision and are in the stage of implementing it.

In two studies I test whether one's cognitive orientation (mindset) related to their pre- vs. post-decisional status can influence the salience of the high- vs. low-level goal aspects. I argue that a deliberative (pre-decisional) mindset highlights the high-level aspects of a situation, and therefore people in a deliberative mindset are more likely to choose products that are positioned in terms of high-level goals, and to commit to and pursue goals that are framed in terms of high-level aspects, while implemental (post-decisional) mindset makes the low-level aspects of a situation more salient, and people in a post-decisional, or implemental mindset are more likely to choose products that are positioned in terms of low-level goals, and to commit to and pursue goals that are framed in terms low-level aspects.

This essay contributes to the literature on goals analysis and self-regulation by examining the processes through which pre-decision and post-decision mindsets and different-level goal activation might aid effective goal pursuit and affect choice. Past research has examined different determinants of strong goal commitment, such as desirability and feasibility of the goal (Gollwitzer 1990), or expectations of success (Bandura 1998). I look at determinants of goal commitment that have not received adequate attention in the past –level of goal abstraction, and decisional status-related mindset. Moreover, I extend my analysis beyond goal commitment and examine the effects that these determinants have on anticipated goal pursuit and choice in the important contexts of healthy nutrition and weight management.

The remainder of this essay is organized as follows. First, I review past literature dealing with goal hierarchy and action phase-related mindsets. I then discuss my proposed conceptual model. Next, I present two studies that show how consumers' mindsets related to their decisional

status affect their assessment of promoted products and behaviors presented in terms of high- or low-level goals. I conclude with a discussion of implications, limitations, and suggestions for future research.

4.1 GOAL HIERARCHY

Existing research on goal structure and determination has postulated a hierarchical goal structure (e.g. Bagozzi and Dholakia 1999; Carver and Scheier 1998; Huffman, Ratneshwar, and Mick 2000). Some goals are broader in scope than others, and this difference in breadth is often a difference in the level of abstraction at which the goal exists (Carver and Scheier 1998). Higher-level goals (versus lower-level ones), are more abstract, more inclusive, and less mutable.

Carver and Scheier (1998) represent a hierarchy of goals by dividing them into three levels of abstraction: “be” goals (e.g., be happy), “do” goals (e.g., lose weight), and “motor control” goals (e.g., eat low-fat foods). Similarly, Huffman et al. (2000) suggest that the different goal levels are related by virtue of the fact that, over the long run, consumers acquire possessions to perform actions that move them closer to realizing their ideal selves. Thus they organize goal levels in three categories, similar to the ones proposed by Carver and Scheier (1998), goals of being, goals of doing and goals of having. Being goals in their framework are associated with life themes and values. This goal level refers to conceptions of desired self-states, that is, who a person is trying to be (e.g., be happy). Goals of doing are primarily current concerns - purposeful activities and tasks in which people wish to be engaged, and consumption intentions – aims and desires to engage in particular product consumption and use behaviors. These level goals are usually behavioral means of achieving a desired self (e.g., lose 15 pounds). Finally, goals of

having are acquisitive means of facilitating or accomplishing a person's doing goals. Having goals are mainly at the level of benefits sought from ownership and usage of a product, and preferred product features (e.g., eat low-fat foods).

Consumer problem-solving typically begins with goal determination at the intermediate goal level of "what to do," represented by "do" goals or current concerns in the hierarchies discussed above (Huffman et al. 2000; Pieters et al. 1995). Then, depending on various individual and situational factors such as expertise, involvement, difficulty of the behavior, decision-makers may engage in varying degrees of goal determination involving additional goal levels (Huffman et al. 2000). Namely, they may regulate their behavior through consideration of their higher-order goals in order to guide their day-to-day decisions, or through using decision situations as guides for analyzing one's values and higher-order goals.

Goals at different levels in the goal hierarchy mutually influence each other so that they are in alignment with each other. This need for consistency and congruence is based on the concept that people try to avoid inner conflict, and the stress and negative affect that ensue from such conflict (Huffman et al. 2000). Goal alignment can occur through both top-down and bottom-up processes. Higher-level goals often shape and give meaning to lower-level goals through the top-down process of incorporation. For example, the desire to be happy might guide one's actions by making them try to lose weight. On the other hand, lower-level goals such as consumption intentions or benefits sought in a product may shape and activate higher-level goals through the bottom-up process of goal abstraction (Huffman et al. 2000). For example, one might guide their actions by limiting fatty food intake in order to lose weight.

Prior analysis of self-regulation has examined top-down goal activation processes where higher-order "be" goals require the specification of "do" goals instrumental for the advancement

of the “be” objectives (Scheier and Carver 1998), or implementation intentions that are useful for specifying the ways and means through which a previously set goal can be attained (Gollwitzer and Brandstatter 1997). For example, a goal of being healthy might lead to specifying means of losing weight to achieve this goal. Other researchers have examined bottom-up processes of goal activation. Shah and Kruglanski (2003) showed that goals can be activated by their attainment means, where the mere thought of the means brings the goal to mind, in turn increasing the likelihood of continued goal-directed striving. For example, the activity of exercising might activate the goal of being fit, and increase striving towards this end. Fishbach, Friedman, and Kruglanski (2003) examined a slightly different bottom-up goal activation process where temptations tend to activate higher priority goals. For example, seeing a tempting food can activate an overriding goal of being healthy, and lead to more goal-congruent behaviors. Very limited research, however, has empirically examined the interplay of top-down and bottom-up goal activation processes in their promotion of effective goal pursuit (some exceptions are Fujita et al. 2006; Freitas, Gollwitzer, and Trope 2004). This essay extends research in this area by looking at the differential effectiveness of activating high-level superordinate goals (e.g., be healthy) and low-level subordinate goals (e.g., eat low-fat food). Given that persuasive messages, product packaging and positioning, and promotional materials targeted at consumers can be represented in terms of either high- or low-level goals, the issue of the differential effectiveness of these two goal framing approaches has great importance for consumer research.

Vallacher and Wegner (1987)’s treatment of action identification also sheds light on issues related to goal hierarchies. Vallacher and Wegner’s (1987) action identification theory suggests that actions can be represented in terms of superordinate goals that have to do with the relatively abstract “why” aspects of an action, or subordinate goals that have to do with more

specific “how” details of the action. According to this theory, action can be impaired if the action is identified at a level of abstraction that is not optimal in a particular case. For example, they suggest that difficult or unfamiliar actions can be impaired by high-level identities, while an easy or familiar action can be disrupted when the lower-level aspects of the action are salient. This argument suggests that different levels of goal abstraction will differentially promote effective goal pursuit in different contexts and for different people. Therefore in this essay, following the goal hierarchy structures outlined above, I examine how activation of different level goals - superordinate or subordinate - will differentially aid consumer self-regulation.

4.2 MINDSET THEORY

The accessibility of cognitive operations is found to influence how people process information and make choices. This differing accessibility of cognitive operations have been termed mindsets, and are widely examined in self-regulation research (see e.g., Gollwitzer 1990). Recent work has exploited Heckhausen’s partition of self-regulation into four distinct action phases: (1) deliberating whether to take action; (2) planning action implementation; (3) taking an action; and (4) evaluating the action (e.g., Heckhausen 1991). When a person becomes involved with a given task, relevant cognitive procedures become activated and hence more accessible. Different mindsets (i.e., general cognitive orientations with distinct features) should emerge when a person addresses the distinct tasks associated with the different action phases. These mindsets should be endowed with those cognitive features that facilitate the respective tasks and are thus beneficial to task completion (Gollwitzer 1990). Focusing on the first two, *preactional* phases, Gollwitzer and his colleagues posit that each phase requires its own cognitive operations,

which, once accessible due to recent usage, affects how people interpret newly encountered information (Gollwitzer 1990; Gollwitzer and Bayer 1999).

Research has revealed that deliberative and implemental mindsets produce cognitive tuning towards mind-set congruous thoughts in subsequent unrelated tasks (see Gollwitzer, Heckhausen and Steller 1990). Making accessible distinct cognitive operations can orient one towards congruent information by promoting selective attention to and encoding of congruent information, across different content domains. For example, in one study participants were held in either a pre-decisional deliberative mindset by asking them to deliberate on the pros and cons of pursuing a personal project that they are undecided about, or in a post-decisional implementation mindset, by asking them to plan the implementation of a personal project they have decided to pursue (Gollwitzer, Heckhausen, and Ratajczak 1990). On a test of participants' memory in a subsequent unrelated task, participants in the deliberative condition recalled greater amounts of deliberative information, while participants in the implementation condition recalled greater amount of implementation-related information. Gollwitzer, Heckhausen and Steller (1990) also found that participants show superior recall of mindset-congruent information and also have more subsequent mindset-congruent thoughts.

In sum, deliberative and implemental mind-sets tune people's cognitive functioning so that congruent thoughts become readily accessible and congruous information is processed effectively. Furthermore, both mind-sets possess some stability over time and generalize across situations. Adopting a deliberative mindset and considering potential pros and cons of particular courses of action, should subsequently highlight the abstract, high-level value of activities, and adopting an implemental mindset, that is planning how to carry out activities, should highlight the concrete, low-level procedures that comprise activities (Freitas, Gollwitzer, and Trope 2004).

These findings imply that a deliberative mindset related to one activity or situation that involves thinking about the pros and cons, and evaluating the desirability of a decision by asking oneself why they should or should not pursue it, can increase the accessibility of the general cognitive operation of considering activities' desirability, and affect one's perception of a newly encountered activity or a situation by highlighting the new situation's high-level meanings related to superordinate "why" concerns. Therefore, deliberative mindset consumers would tend to construe goals and products in more high-level, abstract terms, and subsequent activation of a goal framed in terms of high-level construal that highlights why one should pursue the goal is expected to promote more effortful goal pursuit and greater choice rates. On the other hand, thinking about how to implement a decision can increase the accessibility of the general cognitive operation of considering activities' means of implementation, will also affect one's perception of a subsequently encountered situation, but in this case it will increase the accessibility of the new situation's low-level meanings related to subordinate "how" concerns. Therefore, implemental mindset consumers would tend to construe goals and products in more low-level, concrete terms, and in this case activation of a goal framed as a low-level goal that highlights how one can pursue this goal will promote more effortful goal pursuit and greater choice rates. For example, consumers in a deliberative mindset will be more persuaded by framing a nutrition goal in terms of why one needs to strive for nutrition, i.e., to have a healthy heart, while consumers in an implemental mindset will be more persuaded by framing the nutrition goal in terms of how one can obtain nutrition, i.e., by eating foods containing antioxidants.

4.3 CONSTRUAL LEVEL THEORY

Additional support for my contention that consumers' action phase-related mindsets will affect their willingness to pursue a goal framed in terms of high- or low-level aspects comes from construal level theory. This theory argues that temporal distance changes people's responses to future events by changing the way people mentally represent those events (Trope and Liberman 2003). When people are thinking about the more distant future, as opposed to thinking about the more near future, they tend to (1) construe actions in more high-level or superordinate terms; (2) classify objects into broader categories; and (3) organize preferences into simpler structures. The greater the temporal distance from a future event, the more likely is the event to be represented in terms of a few abstract features that convey its perceived essence (high-level construals) rather than in terms of its more concrete and incidental details (low-level construals). For example, working on your research in the distant future will be mentally described in terms of high-level, superordinate construals (contribute to science), while working on it tomorrow will be described in terms of low-level, subordinate construals (enter and analyze data).

Since people are more likely to mentally represent and describe distant-future activities in terms of high-level goals, and near-future activities in terms of low-level goals, as temporal distance increases, their preferences would be more likely to reflect the value associated with high-level construals of options than the value associated with low-level construals of options. Therefore, I expect that high-level goal framing will provide a better match for the construals of individuals that are further from achieving a goal, while low-level goal framing will provide a better match for the construals of individuals who are closer to achieving a goal.

Individuals in a deliberative mindset are undecided as to whether to pursue a goal or not and are temporally further from a decision, while individuals in an implemental mindset have already made a decision and are temporally closer to implementing it (Gollwitzer 1990). Therefore, according to construal level theory, deliberative mindset consumers are expected to use high-level (superordinate) construals to a greater extent, while implemental mindset subjects are expected to use lower-level (subordinate) construals to a greater extent.

As discussed above, deliberative and implemental mindsets produce cognitive tuning towards mind-set congruous thoughts in subsequent unrelated tasks and promote selective attention to and encoding of congruent information (see Gollwitzer, Heckhausen and Steller 1990). Therefore, deliberative mindset individuals, who are in the pre-decisional action phase, will be more persuaded to pursue a goal or buy a product when these are represented in terms of high-level goals, since high-level goals are expected to provide a better match for their construals. On the other hand, implemental mindset subjects, who are in the post-decisional action phase, will be more persuaded to pursue a goal or buy a product when these are represented in terms of low-level goals, since low-level goals are expected to provide a better match for their construals.

4.4 CONCEPTUAL MODEL

Based on past research reviewed above I propose that the influence of different level goals on effective self-regulation is moderated by both characteristics of the consumer, and characteristics of the focal issue. More specifically, I predict that consumers' mindsets associated with their decisional status will moderate the relationship between goal level of abstraction and

goal pursuit. I expect that activation of high-level superordinate goals will promote more effective self-regulation for consumers in a pre-decisional or deliberative mindset. On the other hand, low-level subordinate goals will promote more effective self-regulation for consumers in a post-decisional or implemental mindset.

Deliberating on the pros and cons of pursuing a goal will highlight the high-level aspects of the goal that are associated with why one should pursue it, while planning the implementation of a chosen goal will highlight the low-level aspects of the goal that are associated with how it can be achieved. Therefore, I expect that for deliberative mindset consumers, high-level goal activation will be more effective for promoting goal commitment, effective goal pursuit, and choice than low-level goal activation. On the other hand, I expect that for implemental mindset consumers low-level rather than high-level goal activation will be more effective for promoting goal commitment, effective goal pursuit, and choice.

In sum, I expect that for deliberative mindset participants: (1) rate of choice will be higher for a product positioned in terms of high-level goals as compared to the same product positioned in terms of a low-level goal, and (2) activating a high-level goal will promote more goal commitment and more effortful goal pursuit than activating a low-level goal. On the other hand, for implemental mindset participants: (1) rate of choice will be higher for a product positioned in terms of low-level goals as compared to the same product positioned in terms of a high-level goal, and (2) activating a low-level goal will promote more goal commitment and more effortful goal pursuit than activating a high-level goal.

Across two studies in the domain of weight management and healthy nutrition I examine the joint influence of mindsets and goal activation at different levels on goal pursuit and choice.

My proposed conceptual model is presented in Figure 3.1 and is tested in the two studies presented next.

Insert Figure 3.1 about here

4.5 STUDY 1: EFFECTS OF GOAL LEVEL ON CHOICE: MODERATING ROLE OF CONSUMER MINDSET

In the first study I examine the influence of consumers' action phase-related mindsets on their choice of products whose positioning aims to activate a high- vs. a low-level goal. In this study consumers are asked to choose between two products that both promote the same focal goal (i.e., nutrition), and only differ in the level of goal abstraction used to describe the focal goal, with one product's positioning stressing why one should pursue the focal goal, and the other stressing how one can pursue it. As discussed above, deliberative and implemental mindsets produce cognitive tuning towards mind-set congruous thoughts in subsequent unrelated tasks and promote selective attention to and encoding of congruent information (see Gollwitzer, Heckhausen and Steller 1990). Therefore, high-level goal product positioning is expected to provide a better match for construals of deliberative mindset consumers, who are considering the pros and cons of a decision. The cognitive orientation created by such deliberation will increase the accessibility of high-level meanings of the product that is subsequently encountered, and therefore a product positioned in terms of such high-level meanings related to *why* concerns will seem more desirable to consumers. On the other hand, low-level product positioning is expected to provide a better match for construals of implemental mindset subjects, who have made a decision and are planning its implementation. The cognitive orientation created by such planning

will increase the accessibility of low-level meanings of a product, and therefore products positioned in terms of such low-level meanings related to *how* concerns will seem more desirable to consumers.

Additional support for this argument comes from work by Lee and Ariely (2006) who proposed a two-stage model describing how consumers' shopping goals become increasingly more concrete during the shopping process. Results from their studies revealed that consumers modify their goals and cognitive orientations during the shopping process, and in the first stage of shopping they have uncertain shopping goals and construe products in less concrete terms. In the second stage, however, goals become more defined, and products are construed in more concrete terms. These findings provide further support for the idea that high-level goals, which are characterized by being more abstract and less specific, will provide a better match for construals of consumers who are in the pre-decision stage of decision-making, while low-level goals, which are characterized by being more concrete and specific, will provide better match for consumers' construals in the implementation stage of decision-making.

In sum, product positioning related to high-level goal construals will work better for deliberative mindset subjects, while product positioning in terms of a low-level goals will work better for implemental mindset subjects.

Hypothesis 1: Consumers in a deliberative mindset will be more likely to choose a product positioned in terms of a high-level goal than one positioned in terms of a low-level one, while consumers in an implemental mindset will be more likely to choose a product positioned in terms of a low-level goal than in terms of a high-level one.

To assess the proposed hypothesis participants had to evaluate and choose between two products whose positioning is meant to activate the same focal goal – to obtain nutrition.

However, in one experimental condition the product emphasizes why one should obtain nutrition (high-level goal), and in the other condition it emphasizes how one can obtain nutrition (low-level goal).

4.5.1 Design and Procedure

Ninety nine undergraduate students participated in this study in exchange for course credit or for a chance to receive a \$10 certificate for a local restaurant. Participants were randomly assigned to one of four experimental conditions in a 2 (mindset: deliberative, implemental) x 2 (goal level: high vs. low) between-subjects design. Participants were first asked to participate in a study that examines people's decision making process, which was meant to prime deliberative and implemental mindsets. They were then given a second, seemingly unrelated questionnaire containing the goal-level manipulation.

First, deliberative and implemental mindsets were primed in the two mindset conditions. For this purpose I employed deliberative and implemental mindset priming approaches developed by Gollwitzer and his colleagues (e.g., Gollwitzer and Kinney 1989). Deliberative-mindset subjects were asked to choose an unresolved personal problem (e.g., should I switch my major?) and weigh the pros and cons of pursuing or not pursuing it. They were asked to list positive and negative, short-term and long-term consequences. Implemental mind-set subjects were asked to plan the implementation of a chosen personal project that they intend to accomplish within the following 3 months (e.g., move from home). They were asked to list five most critical implementational steps, and commit themselves to when, where, and how to execute these steps. As a manipulation check, both groups were administered a final questionnaire containing six questions (e.g., Gollwitzer and Kinney 1989) ($\alpha = .91$) asking them

how close they are to making a decision whether to pursue their chosen personal project (ranging from 1 “far from making a decision” to 13 “past having made a decision”); how close they are to achieving their chosen personal project (ranging from 1 “I am not yet in the act of making a decision to pursue my chosen personal project” to 5 “I have achieved my chosen personal project”); how determined they feel with respect of the decision at hand; whether they feel they have committed themselves to a certain course of action; whether they feel they have committed themselves to make use of certain occasions and opportunities to act; and how much they would mind if their project could not be implemented (ranging from 1 “not at all” to 9 “very much so”) (Gollwitzer and Kinney 1989).

The second, seemingly unrelated study was a product evaluation study asking participants to evaluate two cereals. Both cereals were of the *Smart Start*[®] brand and both promoted the goal of healthy nutrition⁶. The cereal boxes looked exactly the same with the only difference being the banner below the cereal name. In the high-level goal condition the banner read “HEALTHY HEART: For a long and healthy life,” and in the low-level goal condition it read “ANTIOXIDANTS: with Antioxidants A, C, and E, and Beta Carotene.” After participants saw the cereals they were asked to indicate which of the two cereals they would choose to purchase given they had the same price (please refer to Appendix D for stimuli).

Control variables. As discussed above, Vallacher and Wegner’s (1987) action identification theory argues that any action can be identified in many ways, i.e. have different identity structures, ranging from low-level identities that specify how the action is performed to high-level identities that signify why or with what effect the action is performed. Because action identities exist at different levels of abstraction, people also maintain actions at different levels

⁶ I used pictures of real Kellogg’s cereals sold in the marketplace, and manipulated the packaging so that everything was the same except for the goal level manipulation.

(Vallacher and Wegner 1987). A person may simply avoid high-fat foods trying to lose weight or they may be trying to lose weight in order to achieve a healthier and more fulfilling life. Vallacher and Wegner (1987) proposed that several factors might affect the identification of actions at different levels: (1) the context in which the action takes place – novel settings which lack familiar clues to higher-level meanings can move a person to relatively low levels of identification; (2) action difficulty – the more difficult or disruption-prone an action is, the greater the likelihood that it will be enacted under a low-level identity; and (3) action experience – when actions become progressively more familiar, more automatic, and easier to do, experience enables actions to be understood in terms that transcend the low level characteristics of the action and highlight instead its potential meanings, effects, and implications.

This theory posited a natural tendency for people to drift upwards to higher levels of abstraction (emergence) as long as they can successfully maintain them. According to it easy and familiar actions occur more smoothly when the person holds a high-level orientation, and more difficult and unfamiliar actions are facilitated by lower-level orientation. Furthermore, high expertise and involvement in an issue will allow one to identify action at a higher-level of abstraction, while low expertise and involvement will require lower-level identification.

Furthermore, Huffman, Ratneshwar, and Mick (2000) also discussed the possibility that concrete level goals are more effective for inexperienced decision makers. These authors also suggested that in situations when consumer involvement with a purchase is very high, higher-level goals might be more salient.

To control for factors, which might potentially affect consumers' responses to different-level goal activation, I measure two control variables – involvement with the focal goal and perceived difficulty of achieving the focal goal.

Involvement with the focal goal. One proposed control variable is consumers' involvement with the focal goal of nutrition. I measured involvement with nutrition by asking participants about the importance of achieving the goal using Zaichowsky's involvement instrument (Zaichowsky 1985; see also Pieters, Baumgartner, and Allen 1995), which measures issue involvement using four seven-point semantic differential items anchored at important-unimportant, relevant-irrelevant, of concern to me-of no concern to me, and significant-insignificant ($\alpha = .92$).

Perceived difficulty of achieving the focal goal. To measure difficulty of achieving the activated nutrition goal, I used Vallacher and Wegner's (1987) index of maintenance difficulty. This index suggests that an action can be scaled according to its relative difficulty of enactment, familiarity, complexity, enactment time or learning time. An action should be identified at a relatively high as opposed to low level to the extent that it is seen as easy to do, familiar, performable in a few ways, short in duration, and requiring little time to learn well. An action with indicator values at the other ends of these dimensions is likely to be maintained with lower-level identities in mind. The index consists of four seven-point semantic differential items anchored at difficult – not difficult, not familiar – familiar, complex – not complex, and time consuming – not time consuming ($\alpha = .81$).

Next, I asked participants about the importance of the different-level goals. They had to state how important it is for them to have a healthy heart and how important it is for them to eat foods containing antioxidants (two 7-point items ranging from “Not important at all” to “Very important”). Finally, they had to state their gender, and indicate whether or not they have ever restricted what they eat, and whether or not they have ever been health conscious about that they eat.

4.5.2 Results

Manipulation check. To check the effectiveness of the mindset manipulations I ran a MANOVA with mindset condition as a class variable and the six manipulation check questions as dependent variables. Results revealed that deliberative mindset subjects are further from making a decision about their personal project than implemental subjects ($M_{deliberative} = 7.9$, $M_{implemental} = 10.33$; $t(96) = 4.29$, $p < .01$); are further from achieving their chosen personal project ($M_{deliberative} = 2.2$, $M_{implemental} = 2.9$; $t(96) = 3.61$, $p < .01$); feel less determined with respect to their project ($M_{deliberative} = 6.4$, $M_{implemental} = 7.6$; $t(96) = 3.70$, $p < .01$); less committed to a course of action ($M_{deliberative} = 5.8$, $M_{implemental} = 7.2$; $t(96) = 3.72$, $p < .01$); less committed to make use of certain occasions or opportunities to act ($M_{deliberative} = 6.2$, $M_{implemental} = 7.1$; $t(96) = 2.31$, $p < .05$). However, both groups reported that they would mind very much if their chosen project could not be implemented, so there were no significant differences on this variable ($M_{deliberative} = 7.4$, $M_{implemental} = 7.6$; $t(96) = 0.32$, $p > .1$). The manipulation check results confirmed that the two mindsets were manipulated successfully.

I also checked the perceived importance of the high- and low-level goals by asking participants how important it is for them to have a healthy heart, and how important it is for them to consume foods containing antioxidants. Results revealed that participants evaluate having a healthy heart as a more important goal ($M = 4.70$) than eating foods with antioxidants ($M = 3.65$; $t(98) = 6.09$, $p < .01$). It is not surprising that consumers judged the goal framed in terms of high-order construals as more important than the one framed in terms of lower-order construals, since high-level goal construals represent the primary meaning and essence of the goal, while low-level goal construals represent its secondary and more incidental details (Trope and Liberman 2003).

Hypothesis test. To test the proposed hypothesis I ran a logistic regression on consumers' cereal choice, with mindset condition as the independent variable and issue importance, perceived difficulty, and whether or not consumers have ever restricted what they eat or have been health conscious about it as control variables. Results revealed that, as predicted, participants in a deliberative mindset, as compared to participants in an implemental mindset, are significantly more likely to choose the high-level goal cereal ($a = 0.97, p > .6$; $b = 1.97, p < .05$; odds ratio = 7.2), providing strong support for Hypothesis 1. None of the control variables had significant influence on participants' choices.

Results from this study provide strong support for my hypothesis that action phase mindsets influence consumers' choice of products that are positioned according to different-level goals. It turned out that deliberative mindset subjects are about seven times more likely to choose the high-level cereal than the low-level one (see Figure 3.2). In contrast, when implemental mindset was primed it increased the rate of low-level cereal choice three times. This increase in preference for the low-level cereal is a significant one given that the manipulation check revealed that the high-level goal of having a healthy heart is more important to consumers than the low-level one of consuming foods with antioxidants.

Please, insert Figure 3.2 about here

Results from Study 1 provide evidence for my contention that mindsets related to consumers' decisional status affect their choice of products positioned using different-level goal framing. In my second study I go one step further and examine the joint effects of consumer mindsets and different-level goal activation on two other self-regulation domains – goal commitment and goal pursuit.

4.6 STUDY 2: EFFECTS OF GOAL LEVEL ON GOAL PURSUIT: MODERATING ROLE OF CONSUMER MINDSET

My second study examines the relative effectiveness of the activation of different level goals on subsequent goal commitment and intention for effortful goal pursuit, and looks at the moderating effects of consumers' action phase mindsets. I argue that the relative effectiveness of different level goal activation for promoting effortful goal pursuit and strong goal commitment will depend on consumers' cognitive orientation associated with their decisional status.

As discussed earlier, a deliberative mindset related to one activity or situation that involves thinking about the pros and cons, and evaluating the desirability of a decision by asking oneself why they should or should not pursue it, can increase the accessibility of the general cognitive operation of considering activities' desirability. The resulting mindset will affect one's perception of a newly encountered activity or a situation by highlighting the new situations' high-level meanings related to superordinate "why" concerns. In this case, I expect that subsequent activation of a goal framed in terms of high-level construals that highlight why one should pursue the goal will promote more effortful goal pursuit and greater goal commitment.

On the other hand, thinking about how to implement a decision can increase the accessibility of the general cognitive operation of considering activities' means of implementation. This mindset will also affect one's perception of a subsequently encountered situation, but in this case it will increase the accessibility of the new situation's low-level meanings related to subordinate "how" concerns. In this case, I expect that activation of a goal framed in terms of low-level construals that highlight how one can pursue this goal will promote more effortful goal pursuit and greater goal commitment.

Therefore, I argue that there will be a significant interaction between consumers' cognitive orientations or mindsets and the level of abstraction of an activated goal in that deliberative mindset participants will be more persuaded to pursue a goal framed in terms of its high-level aspects, while implemental mindset subjects will be more persuaded to pursue a goal framed in terms of its low-level aspects.

Hypothesis 2: High-level goal activation will lead to more goal commitment and will promote more effortful goal pursuit for deliberative-mindset subjects, while low-level goal activation will lead to more goal commitment, and will promote more effortful goal pursuit for implemental-mindset subjects.

4.6.1 Design and Procedure

One hundred fifty three undergraduate students participated in this study in exchange for course credit or for a chance to receive a \$10 certificate for a local restaurant. Participants were randomly assigned to one of six experimental conditions in a 3 (mindset: deliberative, implemental or control) x 2 (goal level: high vs. low) between-subjects design. The deliberative and implemental mindset participants were first asked to participate in a study that examines people's decision making process. The purpose of this study was to prime deliberative and implemental mindsets. In the control condition, participants skipped this study and were directly given the questionnaire containing the goal activation manipulation.

The second, seemingly unrelated questionnaire was presented as a study dealing with consumer health focusing on healthy diet and weight loss issues. The purpose of the study was to activate goals at different levels of abstraction. Previous research on consumer goal hierarchies in the context of healthy diet and weight loss (e.g., Bagozzi and Dholakia 1999; Pieters,

Baumgartner, and Allen 1995) has specified three types of goals: a focal intermediate-level goal people pursue representing “What is it for which people strive?,” superordinate goal representing “Why do they want to achieve that for which they strive?” and a subordinate goal representing “How can they achieve that for which they strive?” Following this research I specify “losing weight” as a focal goal in this study. More specifically, participants are asked to imagine that according to the ideal weight guidelines issued by the American Heart Association they need to lose 15 pounds to get closer to their ideal weight. Furthermore, I specify higher-level superordinate goals as values and motives, which provide the ultimate reasons for pursuing a course of action thus providing the reasons why one should lose weight (e.g., live a long, healthy life), and lower-level subordinate goals as specific action plans, which provide the guide as to how one can lose weight (e.g., eat less high-fat food).

Conscious goals can be activated in three different ways (see e.g. Bagozzi and Dholakia 1999). First, goals can be forced on people, through coercion or reward power. Second, goal can arise automatically because of biological, emotional, moral, or ethical forces. These goals are activated unconsciously by internal criteria, but pursued consciously. Third, goals can arise from reasoned reactions to either external stimuli (e.g., the presentation of a new product, or a persuasive appeal), or internal stimuli (e.g., a conclusion drawn at the end of a problem solving; the mere thought that the person has a need). In this study I use the third method of goal activation (Bagozzi and Dholakia 1999). For this purpose I present participants with a brochure featuring a persuasive argument about healthy eating and reinforce this by asking additional questions about the persuasiveness of the argument (please refer to Appendix E for stimuli).

Research has demonstrated that the tendency to construe situations at high or low levels can be induced directly through manipulations that activate cognitive procedures or mindsets

associated with each respective construal (Freitas, Gollwitzer, and Trope 2004). Freitas and his colleagues primed an abstract mindset by asking subjects to consider *why* they would engage in an activity, and a concrete mindset by asking them to consider *how* they would engage in the same activity. These authors found that the method of asking participants to consider why they would engage in an activity or how they could implement an activity indeed leads participants to represent an action differentially abstractly, with the first induction priming a higher abstraction level of identification, while the second priming a lower abstraction level of identification. Fujita et al. (2006) also confirm the effectiveness of this procedure and report that considering questions of why is effective in priming high-level construals, while considering questions of how is effective in priming low-level construals.

In this study I employ a similar procedure in order to activate either a high-level or a low-level goal in the different experimental conditions. Participants in the high-level, superordinate goal condition were exposed to an advertisement and a series of questions that dealt with the issue of *why* someone wants to attain the focal goal of managing their weight. On the other hand, participants in the low-level, subordinate goal condition were exposed to an advertisement and a series of questions that dealt with the issue of *how* the focal goal of managing their weight can be achieved. In the high-level, superordinate goal condition I developed the persuasive argument and questions that followed based on the group-level goal hierarchy structure of weight loss developed by Pieters, Baumgartner, and Allen (1995). The structure developed by these authors only includes high-level, superordinate goals dealing with the question of why someone wants to attain the focal goal, therefore new stimuli were developed for low-level, subordinate goal condition which deals with the question of how the focal goal can be achieved.

To re-enforce the weight management goal activation, before participants proceeded to subsequent questions they were presented with a series of drawings of male and female figures that ranged from 1 (very slim) to 9 (very overweight), and asked to indicate which figure best represents their current weight and which best represents their ideal weight (see Cash and Pruzinsky 1990). Besides re-enforcing the dieting goal activation this manipulation allowed me to differentiate between participants who consider themselves to be overweight, underweight, or at their ideal weight.

In this study I employ several dependent variables – strength of participants’ goal commitment assessed using both affective and cognitive measures of goal commitment, and intentions to pursue the activated goal assessed using three different measures of effortful goal pursuit – participants’ subjective likelihood of effortful goal pursuit, the importance they place on achieving the activated goal, and anticipated effortful pursuit of the goal.

Measures

First, deliberative and implemental mindsets were primed in the two mindset conditions. For this purpose I employed deliberative and implemental mindset priming approaches developed by Gollwitzer and his colleagues (e.g., Gollwitzer and Kinney 1989). Deliberative-mindset subjects were asked to choose an unresolved personal problem (e.g., should I switch my major?) and weigh the pros and cons of pursuing or not pursuing it. They were asked to list positive and negative, short-term and long-term consequences. Implemental mind-set subjects were asked to plan the implementation of a chosen personal project that they intend to accomplish within the following 3 months (e.g., move from home). They were asked to list five most critical implementational steps, and commit themselves to when, where, and how to execute these steps. As a manipulation check, both groups were administered a final

questionnaire containing the six mindset manipulation check questions used in Study 1 ($\alpha = .91$) (Gollwitzer and Kinney 1989).

After completing the mindset priming questionnaire, participants were given a second, seemingly unrelated questionnaire dealing with consumer health issues. The questionnaire told them that the American Heart Association is running a campaign promoting healthy nutrition habits, and has issued guidelines for peoples' ideal weight according to their age, gender, and height. They were then asked to evaluate a brochure that is part of the campaign. The content in the brochure was manipulated in the different goal level conditions. In the high-level goal condition emphasis was put on *why* one has to be closer to their ideal weight – i.e., to lead a long and healthy life, to look and feel good, and to have a more fulfilling and enjoyable life. In the low-level goal condition the emphasis was on *how* one can get closer to their ideal weight – i.e., by consuming low-fat and low-carb foods, non-processed foods with natural ingredients, and variety of fruits and vegetables.

Next, the *Self-Classified Weight Subscale of the Multidimensional Body-Self Relations Questionnaire* (Cash and Pruzinsky 1990) was administered to examine participants' weight status and reinforce the weight management goal activation. The Self-Classified Weight subscale measures perceived current and ideal weight from 1 (very underweight) to 9 (very overweight), using drawings of a series of nine male and female figures.

After that participants were asked to respond to a series of six questions meant to reinforce the different-level goal activation. In the high-level goal condition they were asked about the effectiveness of controlling one's weight for living longer, for looking and feeling good, for boosting one's confidence, for increasing social acceptance, for being healthy, and for increasing one's enjoyment of life. In the low-level goal condition participants were asked about the

effectiveness of consuming low-fat foods, consuming low-carb foods, consuming non-processed foods with natural ingredients, eating lighter meals, engaging in sports and exercise, and avoiding snacks between meals for controlling one's weight.

Following were the measures of the dependent variables.

Subjective likelihood of effortful goal pursuit. First, participants had to indicate their subjective likelihood of trying to keep a healthy diet and control their weight on a seven-point scale ranging from 1 “not likely at all” to 7 “very likely”.

Importance of achieving the activated goal. Next participants were asked to indicate how important it is for them to achieve the activated goal and to devote efforts towards this end (three 7-point items; $\alpha = .84$).

Goal commitment. I measured consumers' goal commitment to the activated goal of controlling their weight. Goal commitment assesses the degree to which a goal is experienced as binding, and is thus an important determinant of self-regulation. I used two different measures of goal commitment that examine commitment in terms of both affective and cognitive aspects. First, I measured goal commitment in terms of its affective aspects, and asked participants to anticipate feelings of disappointment if goal attainment should fail (one 7-point item ranging from 1 “not at all disappointed” to 7 “very disappointed”; Oettingen et al. 2001). Second, I measured goal commitment in terms of its cognitive aspects by administering Hollenbeck, Williams, and Klein's goal commitment scale (1989), measuring determination to try for a goal and unwillingness to lower or abandon the goal (seven 7-point items; $\alpha = .84$).⁷

Anticipated effortful striving. Participants had to indicate their plan to consume fattening food in the future (Fishbach, Friedman, and Kruglanski 2003). For this purpose I asked them to

⁷ The scale consists of seven items, but one item was dropped as it significantly lowered the scale's alpha and loaded on a different factor in the exploratory factor analysis I performed.

indicate the extent to which they think they should subsequently avoid a number of unhealthy foods: French fries, chocolate, cake, chips, hamburger, pizza, and soda (7-point items ranging from 1 “should not avoid” to 7 “should definitely avoid”; $\alpha = .78$)

Finally, I asked participants about their gender, and whether they ever restricted what they ate, and whether they were ever health conscious about what they ate.

Two control variables were measured two weeks after the original study as a part of an unrelated study. In this way there was no confounding of participants’ responses about their involvement with and perceived difficulty of managing their weight with the dieting goal activation manipulation. These controls and their measures are described in more detail below.

Perceived difficulty of achieving the activated goal. To measure difficulty of the promoted behavior, I use Vallacher and Wegner’s (1987) *index of maintenance difficulty*. This index suggests that an action can be scaled according to its relative difficulty of enactment, familiarity, complexity, enactment time or learning time (four 7-point items anchored at “difficult” – “not difficult”; “not familiar” – “familiar”; “complex” – “not complex”; “time consuming” – “not time consuming”; $\alpha = .67$). It is important to control for this variable, since perceived action difficulty might affect the level at which the action tends to be identified. An action should be identified at a relatively high as opposed to low level to the extent that it is seen as easy to do, familiar, performable in a few ways, short in duration, and requiring little time to learn well. An action with indicator values at the other ends of these dimensions is likely to be maintained with lower level identities in mind.

Involvement with the activated goal. Another important control variable is consumers’ involvement with the focal issue. Involvement with maintaining one’s weight and keeping a healthy diet was measured using the *Drive for Thinness Subscale*, a part of the Eating Disorders

Inventory-2. This scale is comprised of 7 items measuring preoccupation with weight, concern related to dieting, and fear of weight gain (Garner 1991). It is one of 11 subscales that make up the 91-item EDI-2 questionnaire, and asks participants to respond to statements about attitudes toward eating and weight (seven 7-point Likert items ranging from 1 “never” to 7 “always” $\alpha = .91$).

4.6.2 Results

Since participants who consider themselves underweight – i.e. participants who report their ideal weight to be above their current weight – are unable to relate to the focal goal of losing weight, I deleted these participants from the analysis. This resulted in 133 observations, which form the bases for my analysis.

Manipulation check. To check the effectiveness of the mindset manipulations I ran a MANOVA with mindset condition as a class variable and the six manipulation check questions as dependent variables. Results revealed that deliberative mindset subjects are further from making a decision about their personal project than implemental subjects ($M_{deliberative} = 7.2$, $M_{implemental} = 10.4$; $t(59) = 4.0$, $p < .01$); are slightly further from achieving their chosen personal project ($M_{deliberative} = 2.6$, $M_{implemental} = 3.0$; $t(59) = 1.66$, $p < .1$); feel less determined with respect to their project ($M_{deliberative} = 6.2$, $M_{implemental} = 7.3$; $t(59) = 2.09$, $p < .05$); less committed to a course of action ($M_{deliberative} = 5.4$, $M_{implemental} = 7.0$; $t(59) = 2.46$, $p < .05$); less committed to make use of certain occasions or opportunities to act ($M_{deliberative} = 5.5$, $M_{implemental} = 6.7$; $t(59) = 1.96$, $p < .05$); and would mind less if the project could not be implemented ($M_{deliberative} = 5.7$, $M_{implemental} = 7.8$; $t(59) = 3.76$, $p < .01$). The manipulation check results confirmed that the two mindsets were manipulated successfully.

Past research has provided evidence of the effectiveness of asking participants to consider why they should engage in an activity or how they could implement an activity for priming different abstraction levels of identification (Freitas, Gollwitzer, and Trope 2004; Fujita et al. 2006). In my study this end was successfully achieved using two manipulations - a persuasive argument framed in terms of high- versus low-level construals, and a series of questions about the effectiveness of achieving the focal goal for obtaining high-level benefits in the high-level condition, or about the effectiveness of the low-level means for achieving the goal in the low-level condition.

Results. To test hypothesis 1 I ran a MANOVA with mindset and goal-level conditions as independent variables and subjective likelihood of effortful goal pursuit, importance of achieving the activated goal, goal commitment, anticipated feelings of disappointment if goal attainment should fail. Anticipated effortful striving as dependent variables, and issue involvement, perceived difficulty, gender, and whether or not consumers have restricted what they eat or have been health conscious about it were included as control variables. As can be seen in Table 3.1, the interplay of goal-level and mindset was a significant and substantial predictor for all the dependent variables (*Wilks' Lambda* = 0.79, $p < .01$), providing strong support for Hypothesis 2.

Insert Table 3.1 about here

Of the control variables, drive for thinness and being health conscious about eating had consistently strong influence on participants' goal commitment and pursuit (see Table 3.1). Not surprisingly, participants who have a high drive for thinness and are health conscious about what they eat reported stronger commitment and intentions to pursue the activated goal of losing weight.

The obtained significant two-way interactions provided strong support for Hypothesis 1. Further analysis of the group means revealed that in the deliberative mindset condition high-level

goal activation lead to higher subjective likelihood estimates of effortful goal pursuit ($M_{high-level} = 5.7, M_{low-level} = 4.1; t(127) = 2.69, p < .01$); higher importance of achieving the goal ($M_{high-level} = 5.7, M_{low-level} = 4.4; t(127) = 2.81, p < .01$); stronger goal commitment ($M_{high-level} = 5.6, M_{low-level} = 4.7; t(127) = 2.18, p < .05$); stronger anticipated disappointment in case the goal is not achieved ($M_{high-level} = 5.4, M_{low-level} = 3.5; t(127) = 3.07, p < .01$); and stronger anticipated effortful striving ($M_{high-level} = 5.7, M_{low-level} = 4.6; t(127) = 2.65, p < .01$) than low-level goal activation (please refer to Figure 3.3). However, in the implemental mindset condition low-level goal activation lead to higher subjective likelihood estimates of effortful goal pursuit ($M_{low-level} = 5.6, M_{high-level} = 4.3; t(127) = 2.08, p < .05$); higher importance of achieving the goal ($M_{low-level} = 5.3, M_{high-level} = 4.7; t(127) = 1.66, p < .1$); stronger goal commitment ($M_{low-level} = 5.3, M_{high-level} = 4.5; t(127) = 1.85, p < .06$); stronger anticipated effortful striving ($M_{low-level} = 6.0, M_{high-level} = 4.3; t(127) = 4.02, p < .01$); and slightly stronger anticipated disappointment in case the goal is not achieved ($M_{low-level} = 5.1, M_{high-level} = 4.3; t(127) = 1.12, p < .3$) than high-level goal activation (please refer to Figure 3.3). In the control condition, where decision status was not manipulated, there were no significant differences in goal commitment or effortful goal pursuit across the high- and low-level goal activation conditions (please refer to Figure 3.3).

Please insert Figure 3.3 about here

Results from Study 2 confirmed my hypothesis that the effectiveness of goal activation at high- vs. low-levels of abstraction depends on consumers' decisional status and their mindsets associated with it. As predicted, deliberative mindset participants were more committed to an activated goal, and anticipated significantly more effortful pursuit of the goal in the high-level goal activation condition as compared to the low-level one. On the other hand, implemental mindset participants reported significantly more goal commitment and anticipated effortful goal

pursuit in the low-level goal activation condition, as compared to the high-level one. These results suggest that persuasive messages and consumer campaigns should be framed differently when targeting consumers at the different stages of their decision-making process. My findings are consistent with past literature on action phases and construals levels and have important implications for consumer research and marketing practice.

4.7 GENERAL DISCUSSION

The third essay of my dissertation combines temporal and hierarchical approaches to goal pursuit and examines the interactive effects of decisional status mindsets and different-level goal activation on different domains of self-regulation in two important consumer contexts: healthy nutrition and weight control. Study 1 examines the interplay of mindsets and different levels goal priming on consumer choice. In this study I show that consumers in a deliberative mindset are more likely to choose products positioned in terms of high-level superordinate goals, while consumers in an implemental mindset are more likely to choose products positioned in terms of low-level subordinate goals. In my second study I show that the interplay of mindsets and goal levels also affects consumers' commitment to an activated goal and their intent to pursue the goal in the future.

Findings from this essay have important implications for the design, presentation, and communication of consumer products, persuasive messages, and public education campaigns targeted at improving consumer decisions and behaviors. My findings suggest that consumers' decisional status, i.e., how far they are from making a decision, affects their information processing and subsequently their receptiveness to persuasive messages. It seems that product-

and campaign-related messages used in the media that reach consumers in their homes would be more effective if presented in terms of high-level superordinate terms, while messages in a store environment, where consumers are likely to be in an implementational mindset, would be more persuasive if framed in terms of low-level, subordinate goals.

This essay provides several important contributions to existing research. First, it fills a gap in the analysis of goal structure as it looks at the effects of different-level goals on subsequent self-regulation. Results from two experiments revealed that high-level vs. low-level goals are differentially effective for self-regulation depending on one important factor: consumers' action phase mindsets. The predicted pattern of results emerged across different domains of self-regulation: (1) goal commitment measured in terms of both cognitive and affective aspects; (2) anticipated effortful goal pursuit measured in terms of subjective likelihood of effortful goal pursuit, importance of achieving the focal goal, and anticipated effortful striving, and was replicated when consumer choice was examined as a dependent variable.

Second, this essay contributes to extant literature on goal activation and goal setting. Recent reviews of research on goals (Austin and Vancouver 1996; Carver and Scheier 1998; Karoly 1993) make it apparent that the analysis of goals primarily focuses on the attainment of set goals. Most goal theories implicitly assume that the goals under investigation have already been set, and much less attention has been paid on the question of how people manage to set goals for themselves (Oettingen, Pak and Schnetter 2001). Carver and Scheier (1999) also noted that the question of where goals come from has not been well explored. The scarce research on goal setting has focused on what kinds of goals people set for themselves. Several determinants of what kinds of goals will be chosen have been examined, including expectations and incentives (Bandura 1997; Heckhausen 1991; Gollwitzer 1990), and self-construal (Higgins 1999).

Furthermore, the relationship between goal setting and self-regulation has not received adequate attention. Recently, some researchers have started to examine the mechanisms of goal setting and their relationship to self-regulation. For example, Oettingen and her colleagues (2001) examined the self-regulation of goal-setting and looked into the processes of turning free fantasies about the future into binding goals, Fishbach, Friedman, and Kruglanski (2003) looked at how short-term temptations can activate overriding higher priority goals which then inhibit the temptations and promote self-control, and Shah and Kruglanski (2003) showed that goals can be activated by their attainment means. This essay extends this research stream by examining how activating goals at different levels of abstraction will influence consumers' pursuit of these goals as indicated by their goal commitment, their intended effortful pursuit of the goal, and their choices.

Third, these findings provide important contributions to construal-level analysis of self-regulation. Recent research has suggested that the activation of high-level versus low-level construals leads to greater self-control as indicated by more physical endurance, preference for delayed over immediate outcomes, less positive evaluations of temptations, and stronger intentions to exert self-control. In this essay I extend these findings in two important ways. First, I examine different domains of self-regulation, namely, subsequent goal commitment, goal pursuit, and choice, and second, I look at an important factor that moderates the effects of different level goal activation – decisional status.

In addition to its important contributions and implications, this research has some limitations to be addressed in future research. Past research has suggested that there are individual differences in people's tendency to use high versus low mental representations in action identification (Vallacher and Wegner 1989). This individual difference, as well as other factors that systematically change consumers' levels of construals, might affect how consumers

evaluate products and messages framed in terms of high- or low-level goals. Therefore, these factors need to be examined in future research of goal-level effects.

Future research should also take the proposed conceptual model one step further and employ a sequential model combining the different dependent variables examined in the two studies presented in this essay. A study tracing how the relative effectiveness of high- and low-level goals changes as consumers go through the different action phases of goal pursuit would strengthen and extend the findings presented in this essay.

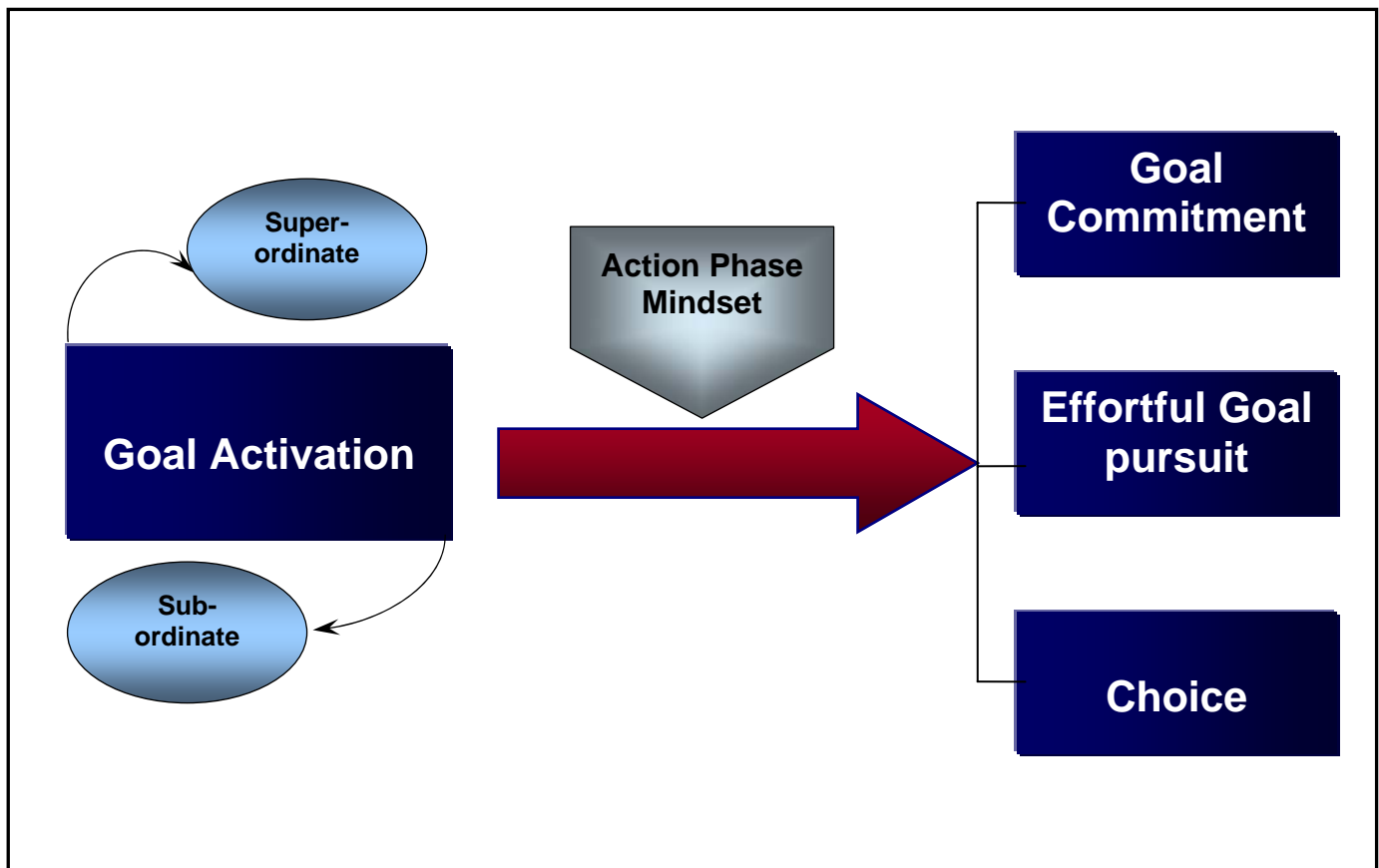
Figure 3.1. Conceptual Model

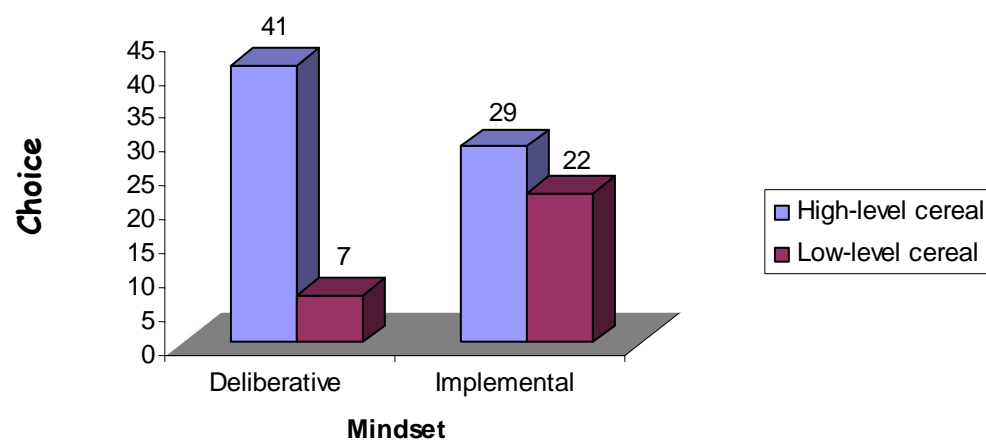
Figure 3.2. Study 1 results

Figure 3.3. Study 2 results

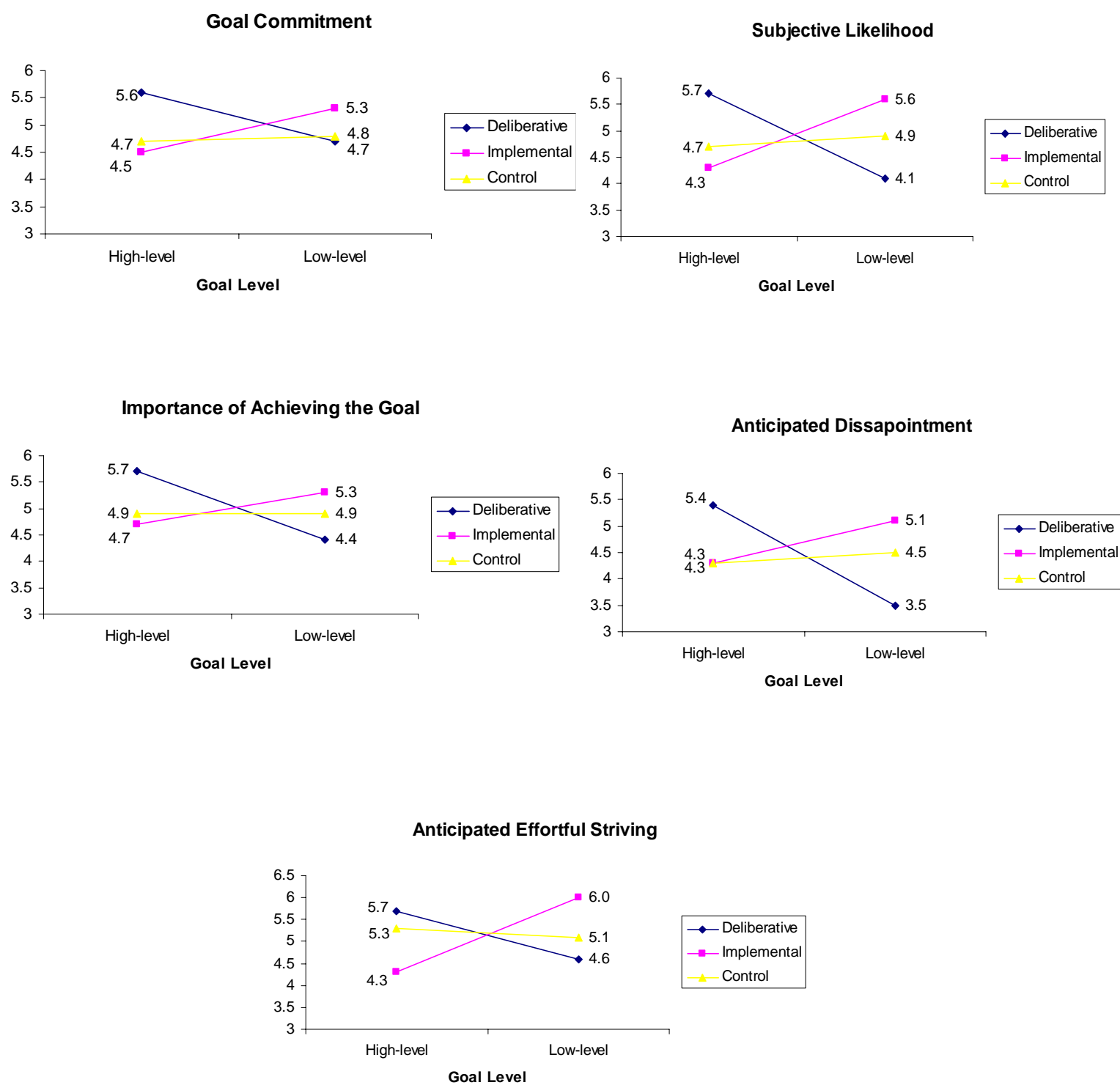


Table 3.1. Study 2, MANOVA results

	Overall effect		DV = Likelihood		DV = Importance		DV = Anticipated disappointment		DV = Goal commitment		DV =Effortful striving	
Source of variation	<i>Wilks' Lambda</i>	Significance	<i>MS</i>	Significance	<i>MS</i>	Significance	<i>MS</i>	Significance	<i>MS</i>	Significance	<i>MS</i>	Significance
Mindset	0.96	$F = 0.38$	1.35	$F = 0.83$	0.32	$F = 0.33$	1.38	$F = 0.76$	1.83	$F = 1.58$	0.76	$F = 0.68$
Goal level	0.95	$F = 1.15$	0.91	$F = 0.56$	0.15	$F = 0.15$	0.18	$F = 0.10$	0.01	$F = 0.01$	0.05	$F = 0.04$
Interaction	0.79	$F = 2.51$ ***	9.35	$F = 5.76$ ***	5.77	$F = 5.79$ ***	11.20	$F = 6.18$ ***	5.44	$F = 4.71$ ***	10.6 6	$F = 9.44$ ***
Control Variables												
Drive for thinness	0.70	$F = 8.35$ ***	88.48	$F = 54.50$ ***	58.76	$F = 60.99$ ***	115.7	$F = 63.80$ ***	33.10	$F = 28.68$ ***	5.08	$F = 4.49$ **
Difficulty of weight control	0.95	$F = 0.98$	6.16	$F = 3.80$ *	0.62	$F = 0.64$	0.00	$F = 0.00$	0.68	$F = 0.59$	0.12	$F = 0.11$
Have you restricted what you eat	0.99	$F = 0.23$	8.16	$F = 5.02$ ***	4.04	$F = 4.19$ **	0.97	$F = 0.54$	1.51	$F = 1.31$	5.82	$F = 5.15$ **
Have you been health conscious of what you eat	0.86	$F = 3.40$ ***	16.79	$F = 10.34$ ***	4.67	$F = 4.85$ **	8.98	$F = 4.95$ **	3.31	$F = 2.87$ *	10.6 2	$F = 9.40$ ***
Gender	0.99	$F = 0.19$	0.19	$F = 0.11$	0.00	$F = 0.00$	1.50	$F = 0.83$	0.00	$F = 0.00$	0.07	$F = 0.06$

Note. * $p < .1$; ** $p < .05$; *** $p < .01$

5.0 *SECTION V*

CONCLUSION

Self-regulation failure creates numerous problems for consumers unable to manage their money and time, control their weight, and limit their drinking. Being unable to regulate one's emotions, impulses, actions, and thoughts creates problems not only for individual consumers, but also for society as a whole. Given the important consequences of self-regulation, the determinants of its success or failure need to be further studied. In my dissertation I examine some important factors that have the potential to enhance or impede effective self-regulation.

The three essays of my dissertation build on Gollwitzer's (1990) action phases model and examine consumers' goal pursuit by taking a temporal approach and looking into the effects of different phases of the decision-making process on self-regulation. The first two essays are devoted to the effects of the pre-decision stage of decision-making, and more specifically of anticipation of the potential outcomes of a decision or action, on two domains of self-regulation: the exertion of self-control in different contexts and the susceptibility to decision biases like information framing. The third essay is devoted to the effects of both the pre- and post-decisional action phases on three other self-regulation domains: goal commitment, goal pursuit, and choice. Furthermore, my third essay combines a temporal and a hierarchical view of goal pursuit, and examines their joint effects on subsequent self-regulation.

Very little past research has empirically examined the effects of the predecision-stage of decision-making on domains of self-regulation such as exercise of effective self-control,

susceptibility to descriptive variance effects, or effectiveness of different-level goal activation for goal pursuit. In my dissertation I address these research gaps. In three essays I examine whether pre-decision outcome elaboration might enhance consumers' self-regulation effectiveness; might reduce their susceptibility to decisions-making biases when analyzing the desirability of a choice (e.g., susceptibility to descriptive variance effects); or might influence the relative effectiveness of goal activation at different levels of abstraction.

In my first essay I provide conceptual and empirical evidence that proclivity towards pre-decision outcome elaboration is an important determinant of self-regulation. In spite of the existence of individual differences in elaboration on potential outcomes, and their importance for the self-regulation of behavior, this construct has not been examined sufficiently in past research, nor to date has there been a good instrument to measure it. In this essay I conceptualize the construct, and develop a psychometrically sound instrument that captures individual differences in elaboration on potential outcomes. This essay contributes to self-regulation literature by developing a better understanding of the process of elaboration on potential outcomes and establishing a measure that would advance the study of this pre-decision process in various situations and domains.

As discussed earlier, self-regulation failure in various domains of consumers' lives creates significant problems for both individuals and society as a whole. My research revealed that EPO - a stable individual trait - is an important determinant of self-regulation. Results supported my contention that lack of elaboration on potential outcomes is related to a variety of undesirable consumer behaviors such as compulsive buying, obesity, self-control, procrastination, excessive drinking, credit card debt, and failure to invest for retirement. Furthermore, encouraging elaboration on potential outcomes can improve self-regulation for

individuals who do not normally engage in this type of elaboration, which suggests that EPO tendencies can temporarily be altered.

In my second essay I extend my research on individual tendencies to elaborate on potential outcomes, and provide evidence that the tendency to engage in a balanced consideration of positive and negative consequences might eliminate shortcomings individuals ordinarily exhibit when analyzing the desirability of a choice. More specifically, I show that such pre-decision deliberation, which promotes a balanced focus on alternative frames of reference, reduces descriptive variance effects in the domain of investment decision making.

Findings from my first two essays suggest that weaker outcome elaboration tendencies lead to more deleterious consumer behaviors such as excessive drinking, overeating, credit card abuse, inadequate retirement savings, procrastination, and sub-optimal decision making due to biases like descriptive variance effects. However, in both essays results reveal that consumers' EPO tendencies can temporarily be altered and these undesirable outcomes can be alleviated by encouraging consumers to engage in pre-decision outcome elaboration. In Essay 1 I found that low EPO consumers, who are encouraged to consider the potential outcomes of investing for retirement, exercise more self-control and end up saving more money for their retirement. Furthermore, in Essay 2 I found that encouraging low EPO consumers to consider the risks and benefits of investing before making an investment decision reduces their susceptibility to framing effects. These findings provide strong evidence that deleterious behaviors and decision biases could be alleviated by using techniques such as encouraging consumers to consider the pros and cons of available options in a balanced way.

Findings of the beneficial effects of priming EPO have important implications for developing debiasing strategies in important consumer domains such as investment decision-

making or weight management, and have the potential to further our knowledge of consumer decision making processes and advance practice, policy and thought regarding how to enhance decision quality of consumer investing and dieting decisions.

In sum, results from these two essays provide support for a conceptualization of self-regulation, where pre-decision processes have strong effects on consumers' self-regulation decisions and behaviors. Consumers with stronger tendencies to engage in such elaboration are more likely to exert self-regulation, choose courses of action that take them closer to their ideal goals, and engage in unbiased information processing. This suggests that at the core of the self-regulation problem is a thorough and balanced pre-decision outcome elaboration. Consumers who are able and willing to consider the potential outcomes before undertaking a course of action make choices and behave in a manner that reflects effective self-regulation, while those who are unable or unwilling to engage in such elaboration make decisions and act in a manner that leads to self-regulation failure.

My third essay extends findings from the previous two, and contrasts the effects of the pre-decision and post-decision stages of decision making on self-regulation. More specifically, I examine the joint effects of consumers' cognitive orientations associated with their pre- vs. post-decisional status and different level goal activation on three important domains of self-regulation – goal commitment, anticipated effortful goal pursuit, and choice. This essay extends my previous findings and suggests that pre-decision deliberation is not always optimal for promoting subsequent effective self-regulation, but works best when combined with goal activation at high-levels of abstraction.

Results from this essay have important implications for the design and promotions of consumer products and for the development of public education campaigns. These findings

suggest that consumers' decisional status, i.e., how far they are from making a decision, affects their information processing and subsequently their receptiveness to persuasive messages. It seems that product- and campaign-related messages used in the media that reach consumers in their homes, where they are likely to be in a deliberative mindset would be more effective if presented in terms of high-level superordinate terms, while messages in a store environment, where consumers are likely to be in an implementational mindset, would be more persuasive if framed in terms of low-level, subordinate goals.

Findings from my three dissertation essays provide important contributions to existing research on self-regulation and have significant implications for the design, presentation, and communication of consumer products, persuasive messages, and public education campaigns targeted at improving consumer decisions and behaviors.

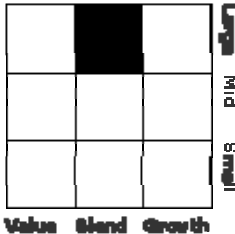
6.0 *SECTION VI*
APPENDICES AND BIBLIOGRAPHY

Appendix A

ESSAY 2, STUDY 1 STIMULI

I

Box Condition

500 Index Stock Fund	The fund seeks to track the performance of a benchmark index that measures the investment return of large-capitalization stocks. Risk level = moderate to aggressive.		1Year return 6.2%	5 Year return - 30%	10 Year return 10.2%
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No Box Condition

500 Index Stock Fund	The fund seeks to track the performance of a benchmark index that measures the investment return of large-capitalization stocks. The fund invests in a blend of value and growth stocks of large cap firms. Risk level = moderate to aggressive.	1Year return 6.2%	5 Year return -3.0%	10 Year return 10.2%
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Appendix B**ESSAY 2, STUDY 2 STIMULI**

Please read the following scenario carefully:

Imagine you have \$5000 available and you have to decide how to invest the money for the coming year. Please carefully read and review the following offer.



Invest your money in Financial Investment Corporation's mutual fund

Historically our fund has had an outstanding performance.

By investing in our mutual fund you may (fail to) realize considerable financial gains.

Current financial investments can significantly affect future well-being. By (not) investing in a high return financial instrument like the Financial Investment Corporation's mutual fund you may (not) be able to build a strong financial foundation and may (not) obtain important opportunities in the future.

Remember, you stand to (lose) gain important financial benefits if you (don't) take advantage of our offer!

In compliance with the Securities and Exchange Commission (SEC) regulations, please be informed that the average annual return of the Financial Investment Corporation's mutual fund over the past 10 years is 9.3%. Performance is historical and does not represent future results, as the value of an investment may fall as well as rise.

Appendix C

ESSAY 2, STUDY 3 STIMULI

Please read the following scenario carefully:

Imagine you have \$5000 available and you have to decide how to invest the money for the coming year. Please carefully read and review the following offer.



Invest your money in the Financial Investment Corporation
mutual fund

*The average annual return for this fund
for the best (worst) 5 of the past 10 years is 12% (negative 5%)*

In compliance with the Securities and Exchange Commission (SEC) regulations, please be informed that the Financial Investment Corporation mutual fund is a variable financial instrument and its average annual return over the past 10 years is 5.03%.

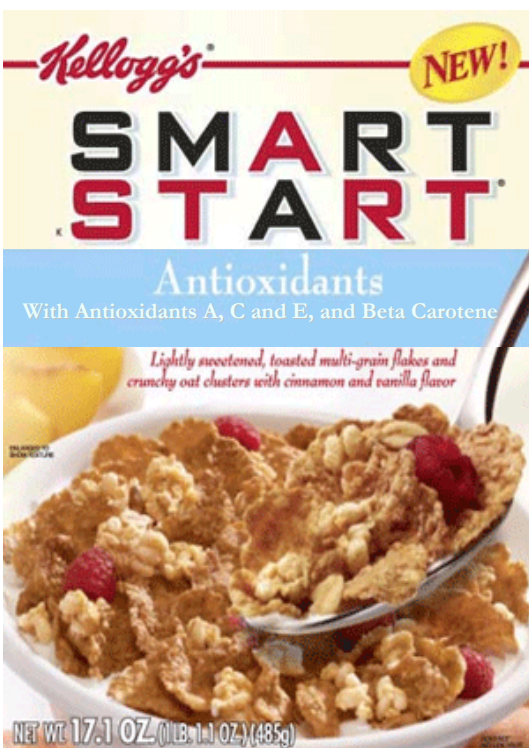
Disclaimer: Performance is historical and does not represent future results, as the value of an investment may fall as well as rise.

Appendix D

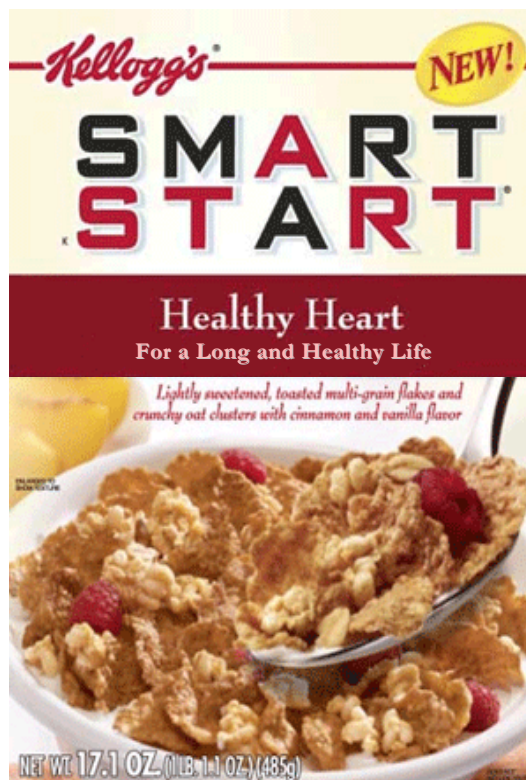
ESSAY 3, STUDY 1 STIMULI

Please carefully examine the two cereals presented below then answer the questions that follow.

Cereal # 1



Cereal # 2



Given the two cereals have the same price, which of the two would you choose to purchase? (please check one)

☐

Cereal # 1

☐

Cereal # 2

Appendix E

ESSAY 3, STUDY 2 STIMULI

Superordinate goal activation

The American Heart Association is running a campaign promoting healthy nutrition habits, and has issues guidelines for peoples' ideal weight according to their age, gender, and height.

I would like you to examine the following brochure which is a part of the campaign.

Please read the brochure carefully before you proceed to the questions that follow.



Being close to your ideal weight is essential for your health!

Be active and take your life in your own hands. Eating right now and watching your weight will help you lead a long and healthy life.

Eat right and you will look and feel good, and have a more fulfilling and enjoyable life.

Now imagine that according to the American Heart Association's ideal weight guidelines you need to lose 15 pounds to get closer to your ideal weight.

Subordinate goal activation

The American Heart Association is running a campaign promoting healthy nutrition habits, and has issues guidelines for peoples' ideal weight according to their age, gender, and height.

I would like you to examine the following brochure which is a part of the campaign.

Please read the brochure carefully before you proceed to the questions that follow.



Being close to your ideal weight is essential for your health!

**Consuming low-fat foods, foods low in carbohydrates,
non-processed foods with natural ingredients,
and a variety of fruits and vegetables
is essential for a balanced diet.**

Now imagine that according to the American Heart Association's ideal weight guidelines you need to lose 15 pounds to get closer to your ideal weight.

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